THE

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COMPRISING TEN VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY

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VOLUME IX

SKIN AND VENEREAL DISEASES MISCELLANEOUS TOPICS

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Skin and Venereal Diseases

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SKIN AND VENEREAL DISEASES

BY

WILLIAM L. BAUM, M. D.

SKIN AND VENEREAL DISEASES.

CONSTITUTIONAL RELATIONS OF THE DERMATOSES.

Dermatitis Artefacta has been reported in two cases, one English,[1] one American.[2] In both, while the factitious element is evident, failure to recognize the neurotrophic element is apparent. This failure explains many of the features which puzzle the reporters. Stigmatization in hysterics often reveals the co-existent interacting factors of factitious procedures and neurotrophic states, the last often the product of autosuggestion. In a case reported by M. F. Coomes, both elements were apparent.

One crust (star-shaped, in the center of the forehead), one and one-fourth inches by one inch, had in the center a well-defined cross. A second marking of the same kind occurred about ten days after the first appeared. It was a perfectly distinct cross four inches in length, with the base nearly half an inch wide. The outlines were so well-defined that it appeared to have been produced by an actual cautery skillfully applied. This cross was located near the upper end of the sternum and slightly to the right of the center. A large red scar later occupied its position. The next markings, which appeared on the right shoulder, consisted of the letters *I. H. S.* These letters were about half an inch in length. They looked as if burnt with a wire stencil, the base of the letters being small. The next marking appeared on the right side of the breast some three inches below the middle of the clavicle. The usual burning sensations preceded the development of this mark. There was first a localized

(1) Med. Stand., 1892.
(2) Medicine, 1898.

redness covering a small area. On the following day the redness has extended in such a manner as to resemble the letter H.

Coomes excludes fraud. A hysteric of the type described is subject to dermographism. Dermographism probably produced the crosses and letters to which reference has been made. The dermographic marks could easily then become the source of bleeding. The passivitic hysteric tendency to self-mutilation with amnesia of the same, readily explains the failure of the attendants to detect what might have been at the outset mere ecstatic nail imprints on a dermographic hysteric.

That suggestion could produce all the effects of stigmatization is seen in blistering produced by it. In 1840 Louis Prejalmin with "magnetized" paper produced the effects of cantharides. As Björnstrom [3] remarks, suggestion, not "magnetized" paper, caused the blistering. Björnstrom found that by suggestion conjestion may be produced, carried to raised swelling of the skin, to a blister like that caused by cantharides, to bloody transudation, and even to complete formation of a wound. Charcot and his pupils thus produced all the phenomena of burns. Beaunis hypnotized a susceptible subject and told her that upon awakening she would have red spots upon her forearm, which he tapped lightly so as to avoid reddening from pressure. Ten minutes after awakening there was evident redness at the place touched, which increased in size, was visible about twenty minutes and then gradually disappeared. By suggestion Beaunis caused the mark to remain forty-eight hours.

It is obvious from these experiments and also from those of Krafft-Ebing, Ross, Mabille and others, and from the careful study made by Bourneville (especially of the ecclesiastically renowned Louise Lateau), that autosuggestion and dermographism play the chief part in stigmatization. The "crown of thorns" noticed by Coomes has not rarely been observed. Crosses, stars, *I. H. S.*, etc., while not infrequently produced artifically in hysterics, have very rarely been followed by stigmatization.

(3) Hypnotism.

Dermatitis Artefacta in a Hysteric is reported by Q. O. Adamson.[4] The patient, an attractive young woman, was not suspected by Adamson of hysteria. Her illness began with the unexplained appearance of patches of weeping eczema on the face. These continued to recur on the cheeks, forehead, neck, arms, and later thighs and legs despite treatment and covering with dressing. The crop never failed for a year, the condition being sometimes better, sometimes worse. In the initial stage there was an erythemous flush which rapidly became moist, suppurated and healed with a crust. The eruption was often square or linear, sometimes round. A dermatologist consulted pronounced the case one of dermatitis herpetiformis. The patient went to a specialist without results. Another dermatologist regarded it as a case of dermatitis artefacta. The parents were skeptical; watching by a nurse failed. The patient was removed at length to a nursing home. Here three days after admission, a movement under the bedclothes led to the detection of the lady's hand holding most unsuspiciously a handkerchief, but in the handkerchief was a small ragged piece of pumice-stone! Thereupon this protracted dermatosis came quickly to a complete end. The patient later feigned hemoptysis and bowel obstruction, and was detected.

Dermatitis Artefacta or Pemphigus? An interesting case is reported by S. L. Glidden.[5] The patient was an unmarried woman 28 years of age, of neurotic antecedents, who from 1895 had been for five years under treatment for neurasthenia. Menstruation appeared when she was 14 years old, and remained regular for a year; then irregular menorralgia set in; from 1900 to October, 1908, menstruation was regular, and then it disappeared. In September 1909 she came under care for a skin lesion, which had caused a blister about as large as a dime on the flexor surface of the right forearm; about two days later, a series of small blisters appeared down the arm towards the wrist. She also exhibited a series of scratches on the left forearm, left upper arm, and four scratches three

(4) Brit. Med. Jour., July 2, 1910.
(5) Ill. Med. Jour., December, 1909.

inches in length over the chest between the breasts. These scratches seemed those of a pin or needle, but she denied knowledge of them. The day following, the right hip was covered with scratches claimed to have been made by a cat. Glidden became suspicious of dermatitis artefacta and advised close watch. Within a few days new blisters appeared over uninjured areas of skin not before involved. The lesions that were preceded by scratches first showed inflammation along the line of scratch; they then turned white or gray and blisters formed, filled with a clear or cloudy serum. Within a few days the area of blister turned black and dried, forming a gangrenous patch. The lesions not preceded by injury to the skin surface came with a slight blush of the skin, followed within a few hours or almost at once by a large blister and sometimes surrounded by smaller ones. These lesions have varied during the disease markedly, some blisters being large and firm, filled almost to bursting with sometimes a clear and sometimes a cloudy serum. They are sometimes filled with pure blood, almost black in color. The majority are of the multilocular type, walled off by trabeculæ. If the blister be punctured in one place only it will not empty, and it is sometimes necessary to remove the top before the serum drains away. Another form of blister is flabby, usually filled with a bloody serum emptying itself through a small puncture. This type contains much less serum than the other and is almost invariably followed by a large gangrenous area of sloughing.

During the early stages there was no evidence of involvement of the deeper skin layers, but during the last months, the legs had large areas of gangrenous sloughing ulcers, which have usually gone through both epidermis and corium, involving the subcutaneous layers. When this sloughing patch is removed with the scissors, particles of fat on the under surface are invariably removed. The duration of some lesions has been several months, but they eventually heal with practically no adhesion to the substructure. After healing takes place, the scar is nonadherent and sometimes pigmented. The scar area may be clear for weeks; then without warning a new blister may

appear over the same area. This new slough is not usually so deep as the original one was, and the resulting ulcer heals more rapidly than the original ulcer healed. Some places over the body have broken down fourteen times; others have never recurred. The backs of the legs or the flexor surfaces have always been free, except one small thin bulla over the back of the left calf. The chest has had a series of bullæ between the breasts. None have appeared for several months. The extensor surfaces of the upper extremities except the forearms, have always been free. Buccal, vulvar and anal mucous membranes, and palms, soles, fingers and hairy surfaces have never been affected. The face had two small blisters, which quickly healed.

The patient is anemic and somewhat emaciated. The tongue is coated with a heavy white fur, which has a pinkish appearance. It is flabby and shows the teeth-marks; the lungs are negative; the heart, weak and irregular; the temperature has been normal with an occasional exacerbation to possibly 99.4° F.; the liver is normal; the stomach is slightly dilated; there is marked tenderness over McBurney's point, and over both ovarian regions. The left ovary is the size of a hen's egg. The urine, normal early in the disease, now shows a trace of albumen. The bullæ, as a rule, seem to project abruptly above the normal skin without an areola. Occasionally, they have a reddened base. The contents are usually clear serum. This may be variable, and as previously stated the bullæ may also be murky in appearance, stained slightly with blood or filled with black blood. The ones containing blood always develop gangrenous patches. Because dressings were changed daily, the odor from this condition has never been bad. Microscopically, the serum shows staphylococci, and the culture from the serum shows a pure culture of staphylococci. In two instances the inguinal glands have been markedly enlarged and tender when large areas adjacent were inflamed or ulcerating.

She has complained of chilliness, nausea and vomiting, sleeplessness and occasional anorexia. At other times she has had a voracious appetite, overloading her stomach,

with subsequent gastric and appendiceal colic and vomiting with resulting sleeplessness. During the dressing at the office the hands and limbs were constantly moving, necessitating the aid of an assistant. After each dressing, and before the clothing had been entirely replaced, she would fall over in a hysterical faint or sleep, lasting from five minutes to two and a half hours. The head would fall back, the mouth would be open and fixed, and the breathing, stertorous. The right hand would begin to rub over the appendiceal region, the left hand lying in the lap or hanging at the side perfectly quiescent. To control the movement of the right hand, considerable strength had to be exerted. When the left hand was placed over the appendiceal region that hand would not move. The inhalation of strong ammonia, cold cloths over the eyes and face, or more recently pressure over the ovarian regions were necessary to awaken her. She always awakened smiling and was immediately ready to get up and walk away.

Arsenic has been used in the form of liquor potassii arsenitis, and arsenious acid with iron, Blaud's mass and hypophosphites; pepsin and trional and bromidia were given for sleeplessness; and morphin for pain. The hypodermic syringe was used in its administration during one of her hard gastric crises. It has since been necessary to use the syringe frequently. However, the recent injections have been of plain water only which seems to have as much effect as morphin. Glidden cleansed the wounds with antiseptic solutions daily, and for a protective used an ointment containing balsam of Peru, calomel, carbolic acid and lanolin with an unguentin base. The new blisters and scars have been painted with Churchill's tincture of iodin. Powders, wet dressings and ointments of different sorts were used, but thus far, the treatment mentioned above seems to have given the best results.

In favor of the suggestion that this case was one of dermatitis artefacta are the following facts: The patient will not go to a hospital; she will not have a nurse, and therefore is not under constant supervision; the lesions appear on the body only where her hands can easily

reach; she greatly enjoys having her dressings changed; she is able to be up and around and come to the office for dressings, in spite of the large areas of ulceration.

The idea that carbolic acid, lye or other medicine might have been used cannot be accepted. The surface of the bullæ shows no escharotic effect, even under the glass. Many bullæ are multilocular. Many are hemorrhagic in nature and repeat themselves over the scar tissues or appear on the normal skin with equal facility. They have also twice appeared under bandaged areas; they are, as a rule, irregular in outline. Glidden believes the case one of "pemphigus gangrenosus," which has shown lesions of several varieties.

Toxic Erythemata are divided by J. L. Bunch [6] into the following:

(1) *Erythema maculosum, papulatum, or figuratum.*
Quinin.
Belladonna and atrophin.
Antipyrin.
Copaiba balsam, cubebs, gonosan.
Diphtheria and other antitoxins.
Potassium and sodium iodids.
Chloral hydrate.

(2) *Erythema scarlatiniforme.*
Salicylic acid and salicylate of sodium.
Quinin.
Mercurial preparations, especially calomel.

(3) *Urticaria, with or without erythema.*
Antipyrin.
Iodids and bromids.
Salicylic acid and sodium salicylate.
Santonin and valerian.
Copaiba, cubebs and turpentine.

(4) *Papulo-pustular lesions.*
Iodids and bromids.
Arsenic.

(5) *Vesicular and bullous erythemata.*
Preparations of iodin and bromin.
Copaiba balsam.
Sulphonal.

(6) *Herpes zoster.*
Arsenic.

(7) *Purpura.*
Quinin.
Iodin and iodids.
Potassium chlorate.
Salicylic acid and salicylates.

(8) *Nodular Lesions.*
Iodids and bromids.

In this classification commoner drug eruptions only are dealt with, from the viewpoint of cutaneous lesions which

(6) Clin. Jour., Aug. 2, 1910.

most frequently result from the ingestion of certain drugs. Such a classification is necessarily incomplete. Lewin who examined 402 drugs as to their influence on the skin, found that 204 (*i. e.*, 50.7 per cent.) produced changes in the skin. Several eruptions often occur simultaneously, or one form tends to pass into another. An erythematous eruption may develop urticarial elements, and later on bullæ or purpuric hemorrhages. Arsenic, the drug most commonly given for long periods, may at first only cause a pustular eruption, but if persisted in, gives rise to well-marked pigmentation or epidermic thickening and hyperkeratosis. Spread of the eruption far beyond the point of application is of course due to absorption. This accounts for fever, general toxemia, and occasional involvement of the buccal and pharyngeal mucous membrane. In iodoform poisoning, iodin can often be detected in the urine, and mercury in mercurial toxemia.

Internal administration of drugs frequently gives rise to rashes which are not easy of identification, especially in the early stages. Morphologically, these may have such a multiformity as to cause the greatest confusion in practice. They occur as localized or diffused macular, scarlatiniform, circumscribed or universal erythemata, urticarial, vesicular or bullous eruptions, macular or papular rashes with peripheral growth and central evolution, nodules resembling those of erythema nodosum, or purpuric hemorrhages. The localization of these rashes has a marked variety; sometimes they are symmetric, sometimes asymmetric; sometimes the mucous membranes are involved, sometimes not; their extent, the course they follow, and the combination of dissimilar cutaneous elements result in the production of a picture dissimilar to anything seen in the typical forms of skin disease.

External application of irritating chemical substances, if sufficiently strong, produces in most individuals definite cutaneous lesions. This is well seen in many trades where chemical irritants have to be handled over long periods of time. French polishers, for instance, who have to work with potassium bicarbonate, dyers, tanners and painters who work with arsenic, lead and antimony,

workmen dealing with chlorin, camphor and creasote, are all liable to an acute or chronic dermatitis directly traceable to their occupation. This may be papular, vesicular, pustular or exfoliative according to the reaction of the individual, and either trivial or severe. Some workmen who have to handle cinchona bark in the preparation of quinin are liable to an irritating eczema involving the hands, arms and face, on the slightest contact with the bark, while others are almost entirely immune. So, too, the vegetable dust in cotton, jute and hemp factories has an extraordinary irritating effect on some, promptly giving rise to a dermatitis.

In the same way medicaments applied to the skin frequently cause a reaction entirely different from what was intended. Sulphur ointment is often given to cure scabies, but if it be applied thoroughly for more than three consecutive nights it often sets up a dermatitis hardly less irritating than the original scabies. *Mercury* is often rubbed in as a routine treatment of syphilis, and cutaneous eruptions often result. The possibility of mercurial rashes has to be taken into account, and these are usually folliculitis, erythema, eczema or purpura. Folliculitis frequently occurs when mercurial ointment is rubbed into a hairy portion of the skin; it first shows itself as a tiny nodule round the hair follicle, which rapidly grows into a pustule. When blue ointment is rubbed in for pediculi pubis, the same folliculitis often results, or the eruption may be a morbilliform or scarlatiniform erythema, spreading even over the whole body, with intense itching or burning and sometimes a considerable rise of temperature. The inflammation subsides after a few days, the rash becomes paler and is succeeded by an exfoliation of large flakes of epidermis. "Mercurial eczema" is a still more severe dermatitis, in which well-marked vesicles and blebs are associated with diffuse redness and swelling of the skin, which in rare cases may go on to purpura.
second erythema.

Mercurial lotions, gauzes impregnated with mercurial salts and applied to wounds, often set up a certain amount of dermatitis, especially when applied to places

where the skin is thin and delicate, and of these mercuric and zinc bicyanide is perhaps the least irritating. Chrysarobin and chrysophanic acid often cause dermatitis, and here, again, those portions of the skin which have been affected with psoriasis and cured by chrysarobin may be the only portions of the skin which are immune from a subsequent chrysarobin dermatitis. Iodoform often sets up a dermatitis. Practically all chemical dressings, even boracic acid, set up irritation in predisposed individuals. The only dressing absolutely innocuous is sterilized wool or gauze. Inability to classify the cutaneous phenomena as belonging to any recognized skin affection is frequently sufficient to suggest the diagnosis of a drug eruption. Polymorphism may be of great help in diagnosis.

Arsenic eruptions of the acute variety generally take the form of a scarlatiniform or morbilliform erythema. This usually involves the face, neck, shoulders and arms, is accompanied by edema of the face and congestion of the conjunctiva, and may exceptionally extend to other parts of the body. The erythema may be followed by desquamation and cure, or complicated by the appearance of vesicular elements. These are most frequent on the hands, but may involve the arms, feet or scrotum. Bullæ may also supervene on the erythema, giving a picture resembling pemphigus. Cases have been recorded where varioliform lesions have followed the internal use of arsenic. Herpes zoster undoubtedly occurs as a result of taking arsenic. Thus in 557 psoriasis patients who were treated with arsenic, herpes zoster occurred in 2.5 per cent., while in 220 psoriasis cases treated without arsenic not a single case occurred. When arsenic is given over long periods, keratosis of the hands and feet involving both palmar and plantar surfaces with marked callosities over the knuckles, but always symmetrical, may show itself. This has been seen after four weeks' administration of arsenic. Epithelioma sometimes supervenes on hyperkeratosis. Melanosis, in diffuse brownish patches, is a well-known result of the prolonged administration of arsenic and is most marked in those areas which are normally pigmented. As mucous membranes are not in-

volved in this pigmentation, a distinction from Addison's disease is thus established.

The preceding skin eruptions are usually the sequelæ of arsenic taken for medical reasons. Arsenic may also be absorbed unwittingly. Wall-papers impregnated with arsenical coloring, dusting-powders containing arsenic, beer containing arsenic, sheep washes containing arsenic, and numerous other substances have been the cause of severe arsenical poisoning. Detection of the arsenic may occur only as the result of a correct diagnosis of the patient's symptoms.

Iodids, whether applied externally or taken internally, tend to give rise to an eruption which is more characteristic than the rashes produced by any other drugs. The commonest form is that of acne postules, which involve the face, shoulders, chest and back, and are especially liable to affect the individuals who have a natural predisposition to acne vulgaris. The lesions are reddish with an erythematous base, surrounded by a pustule, varying in size from a millet-seed to a hazel-nut, projecting prominently above the level of the surrounding skin. The surface of the acne spot becomes scabbed over, and resembles either a variola pustule or an erythema pustule. On the face particularly these lesions may increase in size until they resemble large boils, of a dark coppery color, or even anthrax nodules, flat or slightly pedunculated, with small sieve-like openings through which a quantity of pus can be squeezed. These excrescences run a painless chronic course, and leave smooth cicatrices. Such lesions may in early stages be mistaken for erythema nodosum or later on for gummata, or mycosis fungoides. When mistaken for gummata the physician may be led to increase the dose of iodid, with most serious results to the patient. Audry has recorded a case which went on to gangrene. Eczematous eruptions are much rarer, but a circumscribed or confluent erythema, consisting of red or brownish patches involving the face and upper part of the trunk, is not so uncommon. The erythema may involve the whole of the body, like scarlatina. In one case, after 7 tablespoonfuls of a 3 per cent. solution of potassium iodid, erythema was followed by death.

Edematous and pemphigoid eruptions due to iodid have also had fatal endings. The bullæ may be situated on healthy skin or may have an erythematous base, with contents which are either cloudy or blood-stained, and involve the face, scalp, chest and forearm. The mucous membranes of the mouth, nose, conjunctiva, and cornea may be the seats of such bullæ and the resulting scarring has been known to produce such opacity of the cornea as to render the patient practically blind. Hemorrhages complicate many of the iodid rashes. A definite iodid purpura was first described by Fournier as affecting the anterior surfaces of the lower extremities, but leaving the knees and feet uninvolved. The purpuric spots are usually small, but may coalesce to form large patches violet-blue or purple in color.

These iodid rashes are usually due to the administration of potassium iodid, simply because this is the commonest salt given internally. The potassium salt seems to have some special action on the skin, as in the case of Besmier, in which potassium iodid caused purpura of the lower extremities, but tincture of iodin given internally caused dyspnea and rapidity of pulse without skin eruption. On the other hand, painting with tincture of iodin or injecting it for hydrocele, has been followed by papular, pustular and even bullous eruptions in other parts of the body. Iodoform may also cause a dermatitis.

Bromids produce rashes very similar to those of the iodids, acneiform, pustular and furuncular, bullous and purpuric. The occurrence of such rashes seems to be much more frequent, however, as a result of taking bromids. It has been estimated that 75 per cent. of patients treated with bromids develop a bromid eruption. Very minute doses are sufficient to produce an exanthem in certain individuals and small doses tend to accumulate in the patient more than large. This is owing to the fact that large doses of bromids are diuretic. Frequently an eruption develops after cessation of bromid administration, although none showed itself previously. Bromids are eliminated slowly. Three weeks after taking 15 gr. of potassium bromid, bromin can be detected in the urine and saliva, the maximum amount being present 36 hours

after the dose is taken. A woman who had taken bromids for some time, but ceased taking them for a fortnight, suckled her child at the end of the fortnight, and the child developed a bromid rash. Bromids are absorbed rapidly by the mucous membranes, and can be detected in the saliva three minutes after a dose.

Antipyrin rashes are commonly due to synthetic febrifuges, but similar ones likewise occur after phenacetin, salipyrin, lactophenin, etc. Such are often considerable in extent and symmetrical, but this does not mean that they are easy of diagnosis. In one case the patient had a general morbilliform eruption, best marked on the extensor surfaces of the limbs, but presenting differences from any recognized skin disease. This in itself suggested a toxic erythema. The patient readily acknowledged that she had been taking antipyrin off and on for some time, and had taken 10 gr. the day before the rash appeared. That the rash was due to antipyrin was proved by the appearance of a similar eruption on the second occasion when she took the same dose, but the puzzling factor in these cases is why the drug should at one time produce no skin lesions, at another time a well-marked general eruption in the same patient with the same dose. The most probable reason is that there is a temporary deficiency of elimination by the skin, kidneys or intestines. This is borne out by Lewin, who finds that typhoid cases with constipation are especially liable to antipyrin rashes.

These rashes are usually irregular, hyperemic patches on the trunks or limbs, or else they are general morbilliform or scarlatiniform in character, and persist for several days. Scarlatiniform rashes clear up with exfoliation of large flakes. When localized patches occur, these are especially liable to involve areas where the skin and mucous membranes join, such as the lips, eyelids and penis; and such patches often leave a brown pigmentation behind. Darker pigmentation still is seen on the penis. Fournier has described what he called *verge noire*—the skin of the penis becoming black as a result of taking antipyrin. Urticaria, edema and purpura also result from antipyrin. Of peculiar interest are bullous

eruptions accompanied by shivering and fever, which so closely resemble pemphigus that the erroneous diagnosis may be easily made, and antipyrin continued, or the drug responsible actually increased. The resemblance to pemphigus is increased when bullæ also occur on the mucous membrane of the cheeks and tongue.

Treatment consists in reducing the dose, withdrawing the drug or administering it in a different manner. Hypodermic or rectal administration will sometimes overcome the difficulty if it is absolutely necessary to continue the drug, and in the case of iodids and bromids the increased diuretic effect of large doses will sometimes cause a disappearance of the eruption which has been produced by small doses. But the sounder method is to withdraw the drug. In the majority of cases the eruption will begin to fade within a few days of discontinuing the drug and will soon disappear. The really important point is correct diagnosis of the toxic erythemata, and sometimes diagnosis presents considerable difficulties.

Erythema Nodosum is reported by Otto Lerch[8] in a 28-year-old woman of gouty family antecedents who led an indoor life and indulged largely in starches and sweets. In June, 1909, she broke down under severe nerve-strain with nervous dyspepsia and neurasthenia. A day after she noticed a nodule, the size of a pigeon's egg, in the calf of her right leg near the shin-bone. Three days after seven nodules of various sizes distributed over the calves of both legs appeared. A few days later Lerch saw the patient, as the attending physician had proposed to open "the boils."

Lerch found more than a dozen large, hard, easy movable nodules on both legs, varying in size from a pigeon's egg to a hen's egg, very painful on pressure, and of different shades of color, some of a bright, others of a dusky red, and others again of dark blue color, surrounded by a greenish hue as if bruised. The redness disappeared on pressure.

The patient was of light, bony structure, obese, 5 feet, 1 inch tall, weighing 138 pounds. Her color was sallow, and she suffered from cold perspiration. The scleræ

(8) Am. Jour. Derm., March, 1910.

were white, the conjunctivæ injected, the tongue covered with a thick yellowish fur. There was edema of the ankles extending up the legs. She complained of complete loss of appetite, nausea, a bitter taste, general malaise and pains in the joints, especially in the wrists. She was suffering from chronic constipation, atonic in character. The chest and abdominal organs were normal. The urine and blood showed nothing abnormal. The temperature ranged from 99° to 101° F., rising to 102° F. and above only on a few occasions. Throughout the entire course of the disease, a regular slight morning and evening rise was noticed.

At the beginning of the third week of the disease the nodules had disappeared and in their stead a deep, red rash spread over both legs, resembling the eruption in erysipelas, disappearing on pressure. This gradually commenced peeling and disappeared by the end of the fourth week. The skin peeled in large brown flakes, as if blistered, from the places where the nodules had been, and in fine scales where the rash had later on affected the skin.

The treatment, aside from the hygienic, dietetic, and special mouth hygiene consisted in colonic flushing once a day with a weak solution of warm Carlsbad water, and the usual Carlsbad treatment, acetyl-salicylic acid for the joint pains, as long as these lasted, and atoxyl by hypodermic injections. Under this treatment the patient made a complete recovery in four weeks.

Erythema nodosum is characterized by numerous varying eruptions. The symptoms indicate a constitutional trouble, not a mere skin disease. The skin lesions are an expression of the malady just as in exanthematous diseases. Constitutional symptoms, like general malaise, fever, loss of appetite, rheumatic pains, chills and gastro-intestinal disturbances, like those of the exanthemata, also occur. It resembles these diseases closely and may follow in their wake. It has been observed after typhoid fever and other diseases.

The disease is more frequent in the Spring and Fall, and affects women more than men. Nodules appear over the calves of the legs and in some cases spread over the

lower extremities and trunk; occasionally the arms become involved. The nodules are painful on pressure and are bluish-red in color. They are located in the skin, are movable and become gradually absorbed. The skin looks discolored and bruised. Erythema nodosum always is a serious affection as complications are frequent which make prognosis bad. Acute hemorrhagic nephritis, pluritis, and endocarditis have often been observed.

Erythema Scarlatinoides is, according to Samuel Horton Brown,[9] more or less diffused erythema followed by partial or complete desquamation. The disease may be encountered in varying degrees of severity. Sometimes only a part of the body is involved; at others, the condition is universal with slight constitutional disturbances. In most cases it begins with a mild febrile reaction and the appearance, within a few hours or a day or two, of a bright red or crimson punctiform or diffuse eruption, attended by slight burning or itching. It begins usually on the chest and may occur in patches, or may be diffuse. The face escapes, in the majority of cases, but it often spreads over the extremities. With the appearance of the eruption the systemic disturbances subside. Within from twenty-four hours to a few days, the redness begins to fade and passes off with slight or marked desquamation according to the severity of the attack. In severe cases, casts of the hands and feet are shed, and in extreme instances the nails, hair, tongue and throat may be involved. The period of desquamation prolongs the course of the affection one or more weeks. The disease at times is persistent. Many cases show a decided tendency to recurrence. These recurring cases are characterized by periodicity and many of them are confused with dermatitis exfoliativa. It has been observed in some of these recurring cases that the efflorescence becomes milder with each succeeding attack.

The causes of this affection are numerous and various. Many arise without apparent cause. Among possible etiologic factors are mentioned personal idiosyncrasy, various toxemias, septic infection, rheumatism, infectious diseases, gonorrhea, alcoholism, mercury, copaiba, bella-

(9) Am. Jour. Derm., June, 1910.

donna, opium, quinin, chloral, arsenic, phenol, iodids, antipyrin, salicylates, iodoform, ingestion of decomposed food, shell-fish either fresh or decomposed, and sewer-gas poisoning. The condition may occur as a result of idiosyncrasy, with or without the introduction of poisons from without.

Care should be taken in a diagnosis to differentiate the erythema from scarlatina and measles particularly. In erythema scarlatinoides the eruption is seldom so generalized as in scarlet fever and the constitutional disturbance is never so marked. There are no throat symptoms and the strawberry tongue is never observed. In measles the eruption may first be noticed upon the buccal mucous membrane or upon the face, while in erythema scarlatinoides the face is seldom attacked. The temperature record, coryza and associated symptoms of measles are wanting in erythema scarlatinoides. There is neither glandular enlargement nor history of contagion. Tendency to recurrence is to be remembered in diagnosis. It may be confused with dermatitis exfoliativa, but the latter is a chronic or subacute affection attended with inflammation and infiltration, and usually supervening on other scaly affections. Febrile reaction does not occur in dermatitis exfoliativa. Prognosis is good. It seldom lasts more than one or two weeks. Complications are rare. Recurrences are common.

Treatment is of little avail. Cold cream, cocoa butter, sweet oil, petrolatum, and the like may make the patient comfortable during the stage of desquamation. Laxatives, intestinal antiseptics and tonics should be employed, if it be traceable to internal cause. Quinin and salicylates are useful in recurring and persistent cases. Foods, drugs, etc., that give rise to the condition, should be forbidden.

Exudative Erythemata and Visceral Lesions. Exudative erythemata according to M. R. Brown [2] are involvements of the skin characterized in one instance by serous exudate (angioneurotic or localized edema); in another by serous exudate plus hyperemia (urticaria); in a third by serous exudate plus hyperemia and hemor-

(2) Jour. Am. Med. Assoc., July 16, 1910.

rhage (erythema multiforme); and in a fourth by exudation or extravasation of erythrocytes (purpura). While any of these conditions may present itself alone, their not infrequent relationship with arthritis or with certain serious and well-marked visceral lesions, or both, renders the symptom-complex interesting to internists. In different attacks in the same individuals, different manifestations or combinations may be present and give rise to varied diagnoses—Schoenlein's disease, Henoch's purpura, angioneurotic edema or urticaria—all of which may have been correct in so far as that particular attack was concerned. As to internal changes, the most important are those involving the heart, as endocarditis and pericarditis; the kidneys, as nephritis; the gastro-intestinal crisis, and hemorrhages. The symptom-complex then promises a number of skin lesions, a variety of internal disorders and an anthritis of varying intensity.

In 5 of 7 cases arthritis was present, and in the 2 remaining arthritis had been present in previous attacks. Occasionally there is synovitis or peri-articular inflammation; but one is impressed with a relationship to articular rheumatism, particularly as there was in several instances, a preceding or co-incident tonsilitis. All patients with arthritis had some fever. Sweating was not present. Eruption was present in considerable variety. In all but 2 there was purpura hemorrhagica, in 3 localized edema, in 1 urticaria, in 1 erythema nodosum, in 2 erythema multiforme, in 1 vesiculation. In several, different cutaneous manifestations occurred at the same time, in others there were different eruptions at different attacks. There were 2 cases of acute endocarditis, 2 of acute nephritis and in 2 others hematuria. In 1 there was chronic nephritis from the onset, but no blood was found. In 3 there were abdominal cramps, in 1 pleurisy with effusion, followed by dry pleurisy on the other side.

Dermatoses in Mucous Colitis are reported by Audry.[3] These come on at the beginning of a painful attack, even before the intestinal phenomena. They take on three eruptive types, which are: genital herpes, an erythematous type, and an erythemato-urticarial type. The

(3) Jour. des Mal. Cut. et Syph., January, 1910.

first does not possess any specific significance and does not need any particular description; but patients are seen who predict an attack of enterocolitis by their herpetic crops. The erythema of enterocolitis of the mucomembranous type represents a form that is sufficiently well-defined to permit the author to make a diagnosis with certainty of an intestinal trouble of which the patient was not aware or of whose existence he was unaware. It is always preceded by headache, malaise, feverishness, fatigue during a period of time, which varies from one to three days. Then itching comes on and, almost at once, a redness. The itching has its principal seat in the face; but it is also felt in a milder degree on other portions of the body. The redness appears almost exclusively on the face; it occupies the cheeks, the forehead very slightly, and principally the diseased parts. It is a redness which appears and settles itself very rapidly and is very marked, at first assuming a branched form, then a macular one; then it is converted into large surfaces with sharp and irregular borders of varying shapes. There is almost no elevation of the erythematous surfaces. At the end of a few days, the red surfaces become covered with fine scales, the redness progressively fades away, and all disappears in a period of time varying from three to ten days. So far as relapses are concerned, they occur without any cause other than the attacks of enterocolitis.

Audry insists upon the fact that the eruption precedes an intestinal breakdown evidenced by a small number of stools that may or may not be fetid, loaded with pseudo-membranous mucosities, and being semi-liquid rather than frankly diarrheic. The erythema becomes very slight promptly after these attacks.

The third variety is more rare than the preceding ones; it is not, to say the truth, of a relapsing nature; but it is made up of sub-developed attacks which are renewed for weeks and months. These attacks are made up of a sort of explosion of circumscribed rose-colored and superficial edema, the duration of which lasts rarely longer than a few hours, and which leave without any traces remaining. The edematous elevations are soft; they are not larger than a silver dollar at most; they are scattered

without order at all points of the skin; they do not itch nor is there any pain; patients become aware of the onset by a slight uneasiness and a sensation of a slight drawing of the integument. While the second variety, that of pure erythema, reticulated at the beginning, is manifestly bound with the attacks of enterocolitis which it announces, the present variety does not possess this characteristic; only, it is observed in individuals who are often neurasthenic and with larvated enterocolitis, and it is not connected with patent exacerbations.

Purpura. *Painful Complications.* Guyron and Villiard [4] have recently observed painful abdominal attacks in purpura. They are characterized by violent abdominal pains often of an extraordinary intensity, frequent and even inco-ercible vomiting, and bloody stools dysenteric in appearance, at times varied by an obstinate constipation. These attacks may relapse for weeks, months or even for years. They are synchronous with the eruption or precede it for several hours, sometimes several days; or attacks of the same nature may occur without cutaneous purpura. Usually the diagnosis is easy but it may be extremely difficult in certain cases. It may be mistaken for lead colic, hepatic colic, poisoning of some sort, appendicitis, perforative peritonitis, and above all intestinal invagination on account of the bloody stools. Uusually, in spite of the apparent gravity, the patient recovers; yet grave sequelæ have been noted as a consequence, such as peritonitis by perforation and intestinal invagination. These grave consequences usually occur in children.

Purpura Resulting from Benzol. D. Selling [5] reports several cases of purpura in a factory where benzol was used as a solvent. In all of the cases, two of which proved fatal, the most remarkable feature was the blood condition, and this can be best described as the picture of a plastic anemia. In common with this were: 1. The presence of only slight changes in the appearance of the red blood cells. 2. The absence of regenerative forms. In stained specimens of the 2 fatal cases, only one megalo-

(4) Amer. Jour. of Derm., August, 1910.
(5) Johns Hopkins Bull., June, 1910.

blast and monoblasts were found. 3. Scantiness of platelets. 4. Diminution of the granular types of white blood cells, with a relative increase in the mononuclear elements.

Iodic Purpura. F. C. Knowles[6] reports 63 cases of iodic purpura from iodids administered in syphilis, rheumatism and non-dietetic states. The dose had no relation to the result. The eruption was chiefly of one type, either the petechial or the hemorrhagic bullous, although in a few cases other forms of iodid lesions were present. In the hemorrhagic bullous cases, although in several the eruption was somewhat generalized, the face and the extremities were mostly involved, particularly the face and the arms. In the petechial type the eruption in a great majority of the cases was limited to the lower extremities, particularly the lower portions of the legs; in a few cases, however, the outbreak was somewhat generalized or noted on the upper as well as the lower extremities.

All salts of iodin may cause a purpuric eruption. The pathologic changes of the skin were noted in the immediate vicinity of the bloodvessels and in the walls of the vessels themselves. Iodin is rapidly absorbed by all mucous and serous surfaces and rapidly eliminated, chiefly by the kidneys and also through the skin itself. The leucocytes play a distinct rôle in the absorption of the drug. Purpuric eruptions caused by the ingestion of the iodids may be divided into two provisional groups. The first includes the extensive petechial and hemorrhagic bullous cases which occur in those individuals with organic disease, particularly of the kidneys or the heart, or with a lowered condition of the general economy, making them more susceptible to the effect of the drug, or with a strong idiosyncrasy to the same. The second group includes all cases with a localized distribution, particularly those in which the eruption is limited to the lower extremities or the lower legs, which occur in those individuals in perfect health, and which can be explained only on the theory that a mild idiosyncrasy to the iodid is present. Sex and age have nothing to do with the occurence of the eruption, although most of the cases

(6) Jour. Am. Med. Assoc., July 9, 1910.

developed during middle life, and a considerably larger percentage of males were attacked than females.

Pemphigus Foliaceus. The characteristic of this disease, according to A. Schalek,[8] is the bleb which must be elementary, beginning as such, and not from secondary changes of other dermatoses. It must be the essential, not an incidental or unusual feature. It is not a local condition, but a manifestation of grave internal disorder. Its course is chronic with exacerbations and remissions, leading to a deep systemic depression and frequently to death. Many cases of pemphigus reported must be excluded from consideration under this head.

Pemphigus is a rare and idiopathic disease. Concerning its etiology little is known. Against a microbic origin is the fact that the contents of fresh bullæ are sterile; and no clinical evidence exists of contagiousness, while not more than one case in a family has been reported. A toxic process is suggested by analogy with the action of drugs which, when taken internally are followed by eruption of blebs. The occasional increased percentage of eosinophiles seems to support this origin. Pemphigus is also ascribed to neuropathic causes, as functional and organic nerve disturbances often announce the appearance of blebs.

Examinations of peripheral and central nerve tissues have failed to show pathologic changes. Age, sex, race and climate have no predisposing influence. Riecke claims that total ignorance of the etiology of pemphigus is a valuable diagnostic point in differentiating it from other bullous diseases. The bleb may be inter-epithelial or between the epidermis and the corium. The epithelial cells are edematous. The interspinous spaces are occluded. The corium is the seat of a mild, probably secondary inflammation. The capillary bloodvessels are dilated and surrounded by small mononuclear leucocytes. An excess of eosinophiles, found occasionally, was considered distinctive, but no special significance can now be given it. In necropsies on deaths from pemphigus, co-incidental changes only were found.

(8) Jour. Am. Med. Assoc., July 2, 1

Generalized Herpes. J. F. Schamberg,[9] reports 2 cases in which generalized herpes was taken for variola, although it most resembled varicella. One case was that of a 66-year-old man who had pain in the scapular region. Three days later there was an extensive eruption over the left scapular region, left pectoral region and inside of left arm. The following day the eruption was scattered over the body. When seen by Schamberg, the patient had severe herpes zoster, the eruption of which involved the left posterior chest in the region of distribution of the third dorsal nerve, and anteriorly, the left pectoral region and the inside of the left arm and hand. There were large vesicles, some of which had hemorrhagic contents, and looked as if they might ultimately become necrotic. In addition there were scattered vesicles and small ill-defined papules, on the right chest, both sides of the abdomen, the back, forearms and legs. The lesions numbered about 500 or more in all, and varied in size from a pin-point to a pea or larger. Most of the scattered eruptive elements were papular, but here and there distinct herpetic vesicles were seen with clear and occasionally hemorrhagic fluid. The vesicular lesions, when punctured, gave issue, for the most part, to a transparent fluid. Some lesions were characteristically umbilicated. The palmar surface of the left hand exhibited some papules and a number of abortive vesicles. On the forehead and scalp and over the cheeks were small papular lesions. The eruption on the lower extremities was made up for the most part of scattered, barely elevated papules. The patient's temperature was practically normal; the pain had largely subsided, and there was but little itching.

Herpes Febrilis of the Fingers. Although, according to H. G. Adamson,[1] herpes febrilis affects areas where skin joins mucous membrane, cases are sometimes seen in which the eruption is situated on parts of the skin at some distance from mucous membrane; and most works on skin diseases mention the fact that recurrent febrile herpes may appear upon the cheeks, the neck, or the but-

(9) Jour. Am. Med. Assoc., Feb. 12, 1910.
(1) Brit. Jour. Derm., December, 1909.

tocks, often occurring again and again in the same spot. Crocker quotes a case from Barthelemy of "an old woman dying of pneumonia, in whom some patches on the chest, with very large vesicles, were referable to herpes febrilis rather than to zoster." He has, however, been unable to find any reference to febrile herpes attacking the fingers.

Cutaneous Hemorrhages in Typhoid Fever. Three cases are reported by A. Hober[4] of hemorrhage into the skin in typhoid fever. He says that this complication may occur in mild as well as severe cases and that it is not necessarily associated with intestinal hemorrhage. These hemorrhages cannot be called roseola hemorrhagica, whether under this title be placed the hemorrhagic infiltration of the usual rose-spots, or the hemorrhages replacing the rose-spots. The characteristics of the special typhoid bacillus does not determine the occurrence of the hemorrhages, but the relation of the human organism thereto; this is usually called the hemorrhagic diathesis. No such diathesis was present in the 3 cases reported either before or after the disease. It must have developed and disappeared during the disease. Prognosis must not be based entirely upon skin hemorrhages, though if very numerous they are an unfavorable sign.

Pustulating Typhoid Roseola is reported by Cary Eggleston[5] in a 14-year-old boy seen a week after the onset of his illness with symptoms that pointed to a mild attack of typhoid fever. Upon the abdomen and lower part of the chest there were 12 to 15 or more of rose-spots. The majority were small, 2 to 3 mm. across, and quite typical of typhoid rose-spots. Several were large and were capped with small vesicles, containing a clear fluid. Two or three were very large, 10 or 12 mm. in diameter, and deep rose red at the base, which was infiltrated and somewhat elevated forming a distinct areola about a central yellow pustule. The pustules were tender on pressure and bore no relation to hair follicles. Succeeding crops appeared on each of two succeeding days. The vesicles dried up and disappeared four or five days after the rose-spots faded. Cultures from the pus de-

(4) Muench. med. Wochenschr., May 10, 1910.
(5) N. Y. Med. Jour., Sept. 20, 1910.

veloped a pure growth of *Staphylococcus aureus*. The patient suffered a relapse but made a rapid and complete recovery.

Cabiran reports 1 case of a varioliform eruption in typhoid fever; Alexander reports 1 case, and Birnbaum 3 cases, all of which were mild and the patients recovered. The cases of Birnbaum have features in common with the case reported. They all occurred in children, the cultural findings from the pus were not uniform, and in no case were typhoid bacilli found in the pustules. In each case there was a definite development of the pustules from existing rose-spots. From the few cases reported it seems possible that the development of postules is due to a secondary local infection by one or another pyogenic organism and not to a pyogenic action of the typhoid bacillus.

Addison's Disease and the Thymus. According to A. Kahn [7] changes in the thymus and lymphatics exert an influence on Addison's disease in chronic cases. Addison's disease occurred in a thymolymphatic youth whose adrenals had been destroyed by primary tuberculosis. In another case in a 45-year-old man with status lymphaticus the same was the case. Analysis of these and similar cases shows, in Kahn's opinion, that there is a mutual stimulation of the thyroid and adrenals, and the thyroid and thymus, but that there is mutual inhibition between the thymus and adrenals.

Molluscum Fibrosum with Addison's Disease and Tuberculosis. An exceptional case of this kind is reported by Isidor N. Kahn[8] in a 41-year-old man of negative family history. He had been a painter at 19, but because of painter's colic became a peddler. At 32 he noticed pigmented spots on his chest, which spread very rapidly. Simultaneously with this pigmentation, multiple "swellings" appeared on the upper part of his body. He commenced to feel very weak, lost his appetite and vomited frequently. He suffered from severe headaches and felt pain in the lumbar region. These symptoms continued up to the present day; of late he

(7) Virchow's Archiv., June, 1910.
(8) N. Y. Med. Jour., July 16, 1910.

began to cough and feel extremely weak. He complained of dyspnea on the slightest exertion.

The temperature was 98.8° F.; the pulse was 64; the respiration, 24. The patient was markedly emaciated, but of fairly good color. His mucous membranes were normal. The thyroid gland was not enlarged, but there was considerable exophthalmos. The asthenia was extreme.

His skin showed a diffused pigmentation all over the body. It was brownish-yellow in color, and of a deeper shade over the face, hands, waist-line and genitals. Areas of bronze-colored patches were found on the back, over and between the scapulæ, also on the legs and arms. The skin of the neck was deeply pigmented. Small leucodermic spots were seen over the arms, legs and gluteal region. The mucous membranes were not pigmented. Multiple tumors were found all over his body; they varied in size from an ordinary wart to that of a walnut. They were located over the upper part of the back, especially between and over the scapulæ, and in the lumbar region. Some were found on the neck and extremities; one, of some size, was located at the anus, and another at the right parietal eminence. Over the right temporal region, a sac of skin was hanging down. It was the remains of a large tumor, which had grown at this spot and had undergone a species of atrophy, leaving the overstretched skin sacculated. The heart was not enlarged, but it was displaced somewhat to the right. The apex beat was hardly palpable, and the heart-sounds were very weak. No murmurs were heard; slight arteriosclerosis was present. The liver and kidneys were not palpable. The spleen was palpable one-half an inch below the free border.

Examination of the lungs showed increased vocal fremitus over the right axilla and posteriorly at the right base. Numerous crepitant râles were heard at the right axilla from its middle portion to the base. Some râles were also present posteriorly over the right base, and few over the left base near the median line.

The urine was of light amber color, acid, clear, with a specific gravity of 1,018; examination for albumin and

Plate I.

Syringoma.—Twenty-three year old single woman one year after onset. Case of Dr. O. S. Ormsby, Chicago.

Jour. Cut. Dis. Sept. 1910.

Plate II.

Syringoma.—Same case as shown in Plate

Plate III.

Pellagra : Ten year old boy in fifth month of illness. Case of Dr. E. D. Newman, Newark, N. J.
Jour. Cut. Dis. March 1910.

sugar was negative; the diazo-reaction was negative; microscopically, there were found only a few white blood-cells. The blood-pressure was 110 mm.; hemoglobin, 108 per cent; red blood-cells 5,480,000 to the c. mm. The color-index was 1.1. Anisocytosis, poikilocytosis, polychromatophilia, granular basophilia, were not noted; there were no erythroblasts; the white blood-cells numbered 8,400; polynuclears, 83 per cent.; large lymphocytes, 2 per cent.; small lymphocytes, 10 per cent.; large mononuclears, 3 per cent.; transitionals, 2 per cent. No tubercle bacilli were found.

Pellagra in the Insane. J. F. Siler and H. J. Nichols [1] report that of 2,150 inmates at the Peoria institution, the majority of whom have been almshouse and asylum inmates for many years, 175 were pellagrous during the summer of 1909. No physicians, attendants, or employees were affected. About 70 per cent. of cases had suffered from previous attacks and pellagra had been prevalent at least four years. The average age of cases was fifty years; the sex distribution was about equal. Attacks were mild (skin symptoms, mild digestive tract symptoms without constitutional reaction), and severe (marked skin and digestive tract symptoms with pronounced toxemia). A diagnosis of pellagra is not warranted in the absence of skin symptoms. The symmetry of skin lesions was a most striking feature. When bleb-formation occurred the death-rate was high. Digestive tract symptoms were not present in all cases. In some cases diarrhea and stomatitis could be attributed to bad teeth, and infection with amebæ and flagellates, but in other cases, the constitutional symptoms pointed to some additional specific poison. Patellar and plantar reflexes were abnormal in about three-fourths of the cases, usually increased.

It was impossible to determine the exact extent of mental disturbance attributable to pellagra, as all patients were insane before the disease was recognized. No suicidal tendencies developed. Mild cases recovered without therapeutic aid. Severe cases were not much benefited by Fowler's solution, atoxyl, or

(1) Med. Rec., Jan. 15, 1910.

thyroid tablets. As to the feces, 84.8 per cent. of the cases showed protozoal infection (amebæ, flagellates and encysted forms). These protozoan infections account in part for the intestinal symptoms and are believed to be a predisposing factor. In 13 necropsies, well-marked ulcerations of the colon were found in 12 cases, and folliculitis occurred in all. No other organ showed any constant or striking alteration. Cultures of blood, cerebrospinal fluid and spleen pulp were uniformly negative. The disease seemed to Siler and Nicholas a toxemia rather than an infection. Not more than two ounces of corn were eaten a day; no evidence was obtained from the spoiled corn.

Pellagra and Amebiasis, according to W. A. Allan,[2] are so much alike that a differential diagnosis is difficult. In both of these conditions the appearance of the mouth and tongue is similar. In both there are all grades of diarrhea; in amebiasis, depression and neurasthenia often entirely overshadow the symptoms of intestinal parasitism; in both there may be marked emaciation. As long as the etiology of pellagra is unknown, the treatment must necessarily be largely symptomatic. Therefore the physician is not justified in diagnosticating and treating as pellagra, cases that show only sore mouth, diarrhea, emaciation, and melancholia, until amebiasis has first been excluded. This is readily accomplished by a differential blood-count and an examination of the feces.

Dermatoses from Amebiasis. J. L. Jelks[3] has recently reported additional cases of dermatoses associated with amebiasis. In a case observed two years ago, with a very chronic amebic infection and ulceration, the patient had for more than forty years observed that the skin lesions, which were erythematous and macular, and at times edematous, depended very greatly upon the condition of the bowel at the time. This patient was returned to her family physician as incurable, owing to the scarred, distorted stenosed condition of the bowel. She died apparently of exhaustion from extensive desquamative dermatitis.

(2) N. Y. Med. Jour., Dec. 18, 1909.
(3) Lancet-Clinic, July 30, 1910.

Another case, observed in the winter of 1908-1909, of chronic amebic ulceration, with a complicating liver abscess, presented extensive macular, papular and pustular skin lesions, which quickly cleared up under treatment, directed solely to the intestinal infection and ulceration.

Recently a case was presented which had been diagnosed pellagra. The case presented all the symptoms of amebic infection, which preceded the skin lesions. Jelks found the *Ent-ameba hystolitica* in the mucopurulent material taken from the rectum. Pellagra may have its solution as to etiology when systematic examinations are made for parasitic infections and intestinal conditions.

Orange-Skin in Acute Mammary Cancer. A. Leitch [5] criticizes the view of Sir Astley Cooper that the pitting and general "orange-skin" appearance in acute mammary cancer is caused by the contraction of the fibrous tissue in the tumor acting through the suspensory ligaments. It is caused by the factors suggested by identically the same appearance in the skin of the arm in the "brawny arm of breast-cancer." The lymph stasis of the arm is due, not to the compression of the axillary veins, but to the blocking of the lymphatics of the permeating growth. The depressions of the surface giving the orange-skin appearance are the exaggerated pits of the hair follicles. The *erector pili* has its fibers separated like the rest of the corium. In a word, the skin thickening is due to changes in the corium which result from lymphatic permeation and consequent lymph stasis. The corium is expanded and the overlying epithelium is raised above its normal level by the pressure, except in those places where it is bound down by the insertion of a hair follicle in the corium where it is, as it were, moored. No disease in the breast is likely to produce this condition except cancer. Thus, even in the absence of other signs, diagnosis of acute mammary cancer from this alone would be practically certain.

Carcinoma Skin Reaction. Since Bard noticed in 1901 that in hemorrhagic carcinomatous exudates into serous cavities blood is hemolized, considerable attention has

(5) Amer. Jour. Derm., January, 1910.

been attracted to erythrocytolysis in malignant tumors, especially since it seemed probable that anemia in carcinoma might be due to hemolytic substances made in the autolysis of the malignant tumors. The fact that the blood of a carcinomatous patient dissolves normal human erythrocytes seemed to Charles Elsberg [6] to afford a practical test for carcinoma. Accordingly he injected washed red blood-cells of a normal person under the skin of a carcinomatous patient so that the erythrocytolytic substances present in the blood-stream would dissolve the red cells introduced, creating a local hemolysis, and in consequence a reaction at the site of injection. A decided local reaction was observed. Six to eighteen hours after the injection, the affected area was slightly raised and tender, it had a more or less well-defined margin, it measured from 2 to 4 cm., and it was of a somewhat dusky red color. The changes in the skin reached their maximum within one or two hours, and the red area then began to fade, rapidly or slowly. Eight to twenty-four hours after the injection the skin lesion either had entirely disappeared, or more often there was a brownish, bluish or lemon-yellow discoloration which persisted for a number of days.

Elsberg has applied this test in 20 cases of carcinoma. In all, positive reactions were obtained. Of 4 patients with known sarcoma 3 gave a positive reaction. The same test given to 100 supposedly normal individuals was negative. More extended observation appears desirable as to this cutaneous reaction since erythrocytolysins occur in conditions like severe tuberculosis.

Etiology of Lupus Erythematosus. Malcolm Morris [7] states that there are two principal types, the eruptive, corresponding to Kaposi's "aggregate" or "discrete" form; and the slow-spreading, corresponding to that dermatologist's "discoid" form. Kaposi's third variety, characterized by constitutional symptoms of intense severity and often ending in death, has never come under the author's notice, and only exceptionally have cases of the kind been recorded by English dermatologists.

(6) South. Cal. Pract., May, 1909.
(7) Lancet, Sept. 25, 1909.

(Short [8] recorded such a case and MacLeod [9] reported a fatal case associated with nephritis). The "erythematoid" form of lupus vulgaris described in 1891 by Leloir seems to be a phase in what used to be called the "transformation" of lupus vulgaris into lupus erythematosus. The process seems in reality to be nothing more than the transformation of lupus vulgaris erythematoides into a nodular raised infiltration. Several dermatologists, notably Jonathan Hutchinson, hold that lupus erythematosus is essentially tuberculous in origin. Boeck has expressed the view that although the disease is certainly not due directly to the action of the tubercle bacillus on the skin, it is produced by the circulation in the blood of special toxins which are particularly apt to develop in persons of tuberculous constitution.[1] According to him lupus erythematosus is "the expression of a marked tuberculosis of the skin." The weight of opinion is, however, against the doctrine that lupus erythematosus is of tuberculous origin. Morris's view is that there is no evidence, clinical or pathologic, proving that the disease is tuberculous in the sense of a local bacillary infection. MacLeod [2] has never seen or heard of a case in which an injection of tuberculin has produced lupus erythematosus. The disease, aggravated, however, by association with tuberculosis, is not infrequent.

The theory that it is a toxemia is gaining ground. Sequeira and Balean,[3] who made an exhaustive pathologic examination of 71 cases, noted the frequent association of albuminuria with the more active forms of the disease. In one case they had an opportunity of a necropsy. The urine had been loaded with albumin and contained casts and blood; in the kidneys, evidence of recent nephritis was found. From this fact they were inclined to believe that in such cases the inflammation of the kidneys is set up by the excretion of toxins, as happened in exanthematous fevers. Galloway and MacLeod [4] hold that evidence shows association of lupus

(8) Brit. Jour. Derm., 1907, p. 271.
(9) Ibid, 1908, p. 162.
(1) Brit. Jour. Derm, 1892.
(2) Lancet, Oct. 31, 1908.
(3) Brit. Jour. Derm., 1902, p. 267.
(4) Practical Medicine Series, 1904, Vol. X.

erythematosus with chronic nephritic toxemia. They suggest that underlying the disease as its cause are in all probability many forms of blood-poisoning in susceptible subjects, of which perhaps not the least common is the absorption of poisons produced by pyogenic organisms. In addition to the vasomotor disturbance caused by the toxin there may possibly be a tendency to the ready production of paralysis of the vasomotor mechanism.

In a large proportion of cases of lupus erythematosus the patient has presented circulatory anomalies of one kind or another, such as purple color of the hands, a tendency to chilblains, "dead fingers," and Raynaud's disease. These conditions actually develop into lupus erythematosus. The disease appears to be essentially a chronic inflammation of the skin, local in origin, prone to occur in parts, such as the hands, feet and nose, where the circulation is liable to be injuriously affected by exposure to cold; or in the so-called "flush area" of the face, where in many persons vasomotor disturbance results from slight causes. Hence the relative frequency with which women, subject as they are to circulatory disturbance at the menstrual periods and at the menopause, are attacked by lupus erythematosus.

Vasomotor disturbance may cause predisposition to toxic infection, but neither such infection nor its nature has been absolutely demonstrated. No specific microorganism has been found to the action of which the origin of the disease can be traced. But it is not unlikely that acutely inflammatory manifestations may be due to the invasion of the streptococcus of erysipelas or other organism.

Lupus erythematosus is sometimes associated with osteo-arthritis. Morris has a man under care, who, after suffering for many years from osteo-arthritis, has within the last few months become the subject of lupus erythematosus of both ears and cheeks.

Tuberculides. J. L. Bunch[5] points out that lupus verrucosus presents some differences from lupus vulgaris in that it is the form of tuberculosis seen in butchers, pathologists, and others who directly inoculate their

(5) Lancet, Jan. 29, 1910.

hands from a tuberculous body. The lesions are nodular, crusted, sometimes markedly hypertrophic, usually single, rarely multiple. On removing the crust pus may sometimes be squeezed out. The typical soft, reddish-brown nodules of lupus vulgaris are entirely absent, the lesions being essentially firm and hard. The disease is very chronic and may persist for years, but tuberculosis may develop elsewhere as well. The tuberculides are characterized by successive eruptions of lesions, at first either papular or nodular, more or less deep, of slow growth, sometimes becoming pustular or ulcerating and healing with the formation of a cicatricial scar. They may be lichenoid, as in lichen scrofulosorum; papular, as in folliculitis; acneiform, as in acne cachecticorum; or erythemato-atrophic, as in lupus erythematosus. The tuberculides occur as a rule in individuals who are suffering from some form of tuberculosis. This rarely takes the form of phthisis but is more commonly a slowly developing form of tuberculosis of the glands or bones or joints, that is to say, some variety of tuberculosis which is seldom fatal but rather capable of cure.

Acanthosis Nigricans is reported by T. S. McIntosh[6] in a 29-year-old single woman of negative family antecedents. About eight years ago her attention was drawn to the condition by the fact that palms of her hands were becoming hard and yellow. This seems to have begun on both hands simultaneously. After a time the palms became cracked. The feet began to be affected soon after the hands, the soles becoming hard and thick, and cracking taking place between the toes. For several years before the hands were affected the skin of the body was brownish in places, but the patient did not pay much attention to this. The brown discoloration became gradually more extensive and the color deeper.

Some years ago she was under treatment for two or three months, when the thickening of the palms was greatly reduced, but it gradually increased again after the treatment was stopped. Lately the hands have become so stiff, especially in the morning, that she has found it difficult to perform her work. Since 1908 she has

(6) Brit. Med. Jour., Nov. 27, 1909.

had from time to time attacks of what she thought were rheumatic pains in shoulders, arms, and legs in damp weather. On her admission to the Edinburgh Royal Infirmary the face and neck were of a uniformly dark color, with a broad band of darker pigmentation across the forehead. On the body there were numerous patches which looked simply like pigmentation; but examined closely and the finger run over them they were found to be very slightly raised and made up of innumerable minute, flat-topped, warty growths giving a velvety appearance to the patch.

The front of the chest as a whole was of normal color. The nipples and areolæ were not unduly pigmented, but a small pigmented wart existed on the front of the chest, and pigmented patches of the kind described were found on the anterior axillary folds. A line of pigmentation ran down the midsternum and spread out on the epigastrium into one of these velvety patches. The umbilicus was deeply pigmented, and slightly raised; pigmented bands ran from it down to the symphysis pubis and up to join the epigastric patch. Similar bands came round from the back in a girdle-like fashion, more or less parallel to the costal margins, and there was a large patch on the left iliac fossa. The upper part of the back was not affected, but irregular bands and patches were found in the lumbar region and on the buttocks.

In the axillæ the condition was most marked, the pigmentation being very deep and the papillomatous character of the patches much more apparent. On the flexor aspects of the forearms were well-marked patches in which the papillomatous character was more marked than on the trunk, though not so marked as in the axillæ. A few similar patches were on the extensor aspect of the arms.

The palms of the hands showed very marked, irregular thickening, with little mounds and hollows. The skin of the palms was yellow, hard and horny. Some of the most prominent elevations had a worm-eaten or honey-combed appearance. Passing from the palms on to the wrists, the thickening gradually diminished and shaded off into the slightly raised velvety patches on the forearm. On

the backs of the hands, especially over the heads of the metacarpals and along the radial sides of the thumb, index and middle fingers, the epidermis was raised in flat, warty, yellow prominences.

The anterior aspects of the knees were rough and pigmented. There were large corns on several toes of both feet, and the skin of the sole was markedly thickened and yellow, especially over the balls of the toes, the outer margin of the sole and the heel. No patches of leucoderma were found on the skin. The posterior part of the hard palate was yellow, otherwise nothing abnormal existed about the mucous membrane of the mouth.

A small portion of one of the warty patches in the axillæ was removed and showed the characteristic microscopic appearances of acanthosis nigricans. There was great elongation of the papillæ, with marked hypertrophy of the prickle-cell layer ("acanthosis"), especially in the interpapillary processes. There was well-marked hyperkeratosis. There was abundant infiltration, with small round-cells around the vessels and hair follicles and many cells containing pigment in the corium, most abundant just under the palisade layer of the epidermis.

Most cases of acanthosis nigricans microscopically examined, have presented an associated malignant disease of the stomach, liver, or other abdominal organ. The digestive system and the abdomen were therefore carefully examined for evidence of malignant disease. About a year previously the patient began to be troubled with pain coming on very shortly after food. The pain was felt in the region of the xiphisternum, sometimes shooting under the right breast and sometimes under the left breast, and sometimes through to between the scapulæ. The appetite was never much impaired. At first she used to vomit very frequently, and this relieved the pain till the next meal. There was never recognizable blood in the vomit, but once or twice it appeared like coffee-grounds. The vomit was always very "bitter" and burning. Milk was practically the only thing she could tolerate. She lived mainly on milk for about three months. She then consulted a physician who put her on ordinary light diet

and prescribed medicine. This greatly relieved her. She continued to have the pain at times, yet was always relieved by taking another bottle of the medicine. At the beginning of this digestive trouble the pain was sometimes very sharp and severe; lately there has been no severe pain, but sometimes a sensation like a load lying in the lower part of the chest. She has not suffered from vomiting for several months, but sometimes has had a feeling of nausea.

The tongue was rather large, flabby, and indented by the teeth, pale, and slightly furred, with the red papillæ standing out prominently. The stomach was normal in size and position; there was no tumor to be felt, and no splashing detected. There was a little tenderness below and to the right of the xiphisternum, and just under the left costal margin. The liver was normal in size, could not be felt, and no irregularities of its outline were made out by percussion. There was nothing abnormal in connection with any other abdominal organs.

The patient was given an Ewald's test-breakfast after fasting for twelve hours, and the stomach contents were drawn off three-quarters of an hour later. The stomach contents smelt strongly of butyric acid, contained only a trace of free hydrochloric acid, and no lactic acid. Microscopically, no sarcinæ were seen, a fair amount of yeast was present, and Boas-Oppler bacilli were fairly abundant. There were no oil-drops or vegetable matter, nor anything to indicate retention of former meals in the stomach. The stomach contents after a second test-meal two or three days later showed the same characters as the first, except that no Boas-Oppler bacilli were seen. A third test-meal was given some weeks later, and this time free hydrochloric acid was abundant. No Boas-Oppler bacilli were found, and otherwise the characters were the same as in the previous tests.

Examination was not conclusive either of the presence or absence of malignant disease. On two occasions there was almost complete absence of hydrochloric acid, and on one occasion the presence of Boas-Oppler bacilli. The patient, however, improved greatly in general condition during her stay of twelve weeks in the hospital; she

gained 8½ lbs. in weight, and after the test-meal given a day or two before leaving abundant free hydrochloric acid was found, so that a diagnosis of carcinoma would certainly not be justified.

Examination of the blood showed:

Red blood corpuscles	4,420,000
Hemoglobin	75 per cent.
Color index	0.85
White blood corpuscles	7,200

The film showed the red cells rather deficient in hemoglobin, and varying considerably in size, many being small. The proportions of leucocytes are as follows:

Polymorphonuclear cells	54.0 per cent.
Lymphocytes	42.0 per cent.
Eosinophiles	3.0 per cent.

The other systems show nothing abnormal; the urine was normal.

Treatment for the hands and feet, starch poultices, salicylic-creosote plasters, and salicylic soap plasters were tried, and lastly, 10 per cent. salicylic collodion. The last-named preparation has been the most successful and the epidermic thickening has greatly diminished under it. The other parts were treated with boro-calamine lotion. Adrenalin chlorid tried internally, did not seem to have any effect. Pigmentation on the forearms and trunk has diminished slightly, but the warty, pigmented patches in the axillæ did not alter appreciably.

SPECIAL DERMATOSES.

Lichen Ruber Acuminatus. Under this title, E. H. Shields [7] describes a case which he claims shows that the pityriasis rubra pilaris of the French and the lichen ruber acuminatus are identical. The patient was a 49-year-old married woman, with negative family history, who passed through the climacteric without special symptoms. She suffered for a year before coming under observation from "rheumatism." August 10, 1906, an eruption suddenly appeared on the forehead and neck, attributed to poison, the arms and abdomen also becoming involved, and later the back and lower extremities. The eruption was attended with great discomfort, intense burning, itching and swelling of the loose areolar tissue about the eyes. On October 10, 1907, when she consulted Cupp the skin of the face was of a dull red hue, the eyelids were puffed, the skin of the neck was uniformly red; on the trunk the redness was interrupted by areas, mainly linear, in which there was an approach to the normal color. The eruption on the trunk consisted of small conical papules grouped in rows or chains; on some parts of the trunk the papules were irregularly scattered; all of the natural furrows were exaggerated. After the papules were a few days old they became capped with a fine white scale. The appetite was poor, the pulse rapid, and the patient lost strength. After treatment the character of the eruption changed; there was less papulation, particularly on the body, where there was more or less uniform redness and swelling. The papular areas had changed to a darker red color, and appeared drier; the areas of normal skin were much smaller. In the folds of the elbow, axilla, chest and neck circumscribed ulcerations repeatedly recurred, healed and left cicatrices.

(7) Lancet-Clinic, July 30, 1910.

When the patient was seen by Shields eighteen months later, the odor of the skin was very disagreeable. It was cyanotic, the face was swollen, the eyelids were edematous, and her breathing very rapid; the pulse was 160. The appearance of the skin was greatly masked, owing to the accumulation of ointment and débris. The skin of the scalp was red, and covered with greasy, small scales, presenting the appearance of a typical seborrheal eczema; defluvium capillorum was marked, and what few hairs remained were matted together. The skin on the face was livid, red, swollen and more or less covered with a dirty, greasy mass of desquamated epithelium; the removal of the débris left a roughened skin due to minute papules. Deep fissures radiated from the angles of the mouth. Over the left eyebrow was a superficial ulceration 2 cm. long by 1 cm. wide, its base being of a leathery character and devoid of granulations. The skin of the neck was dusky red, rough and discolored black; on removing the dirty, greasy mass, the skin was found to be studded with minute acuminate papules. The normal lines and furrows were exaggerated and the skin thickened. The upper part of the chest was covered with a black, greasy mass, which, upon removal showed the underlying characteristic small conical papules. The same discolored lesions were seen in and around the axilla. Under each breast and in the deep folds of the abdomen were several superficial ulcerations similar to the one already described. The skin of the abdomen was red and somewhat tense, and showed several black areas similar to those already mentioned. The skin of the back was red, and covered with discrete characteristic papules. The skin on the palms was much thickened, showing a very high grade of hyperkeratosis; the natural furrows were exaggerated. The dorsal surface exhibited a mild type of inflammation, and was of a pinkish color; the lines were exaggerated; the dorsal surfaces of the hands were thickly studded with acuminate papules, and on the first phalanges each papule was pierced by a hair which had broken off. The nails were thickened, toughened, dry and brittle. The eruption on the arms was similar to that described elsewhere, the flexor surfaces presenting large

normal areas. The folds on the flexor surface of the elbow were deepened and some were fissured. With the exception of a few areas of normal skin, the skin of the thighs and legs was red, thickened, rough and scaly; the folds were unduly prominent, and in the popliteal region there were deep fissures. There was slight edema. There was marked plantar hyperkeratosis, exaggerated furrows, and the nails were thick, rough, discolored and brittle. The heart was dilated, there was a mitral murmur, the pulse was 160, the urine showed a specific gravity of 1022, was acid in reaction, and contained no albumen or sugar.

The general condition of the patient was very bad. Her answers to questions were rather incoherent and her memory poor. She complained of great itching, and her rest was greatly interfered with. Owing to excessive weakness she could not turn herself in bed. Complete extension of the forearms and legs was painful, no doubt from infiltration of the skin.

On admission to the hospital the patient was cleaned up with an oil bath and then smeared with zinc oxid ointment. After several oil baths the patient was made fairly presentable, and the pruritus greatly relieved. On the fifth day she was greatly depressed. At 10 a. m. the patient vomited a black mass, which she affirmed was colored black by some black coffee that she drank for her breakfast. The patient had had no coffee that day. She continued to grow worse, and died on April 27, of acute myocarditis and pulmonary edema.

Lichen Planus Sclerosus et Atrophicus, according to O. S. Ormsby,[8] was first described by Hallopeau, who called it "lichen planus atrophicus," and later added the word "sclerosus" to the title. Crocker added the word "morpheaceus" on account of its resemblance to certain instances of morphea. That the disease resembles morphea to a marked degree is evidenced by the cases of Stowers, Allen, Schamburg, and others. These patients, when exhibited before dermatologic societies, were considered by some to be instances of lichen planus sclerosus et atrophicus, while others classed them as morphea. The

(8) Jour. Am. Med. Assoc., Sept. 10, 1910.

symptom-complex constituting the disorder as originally outlined by Hallopeau and confirmed by numerous observations since, includes the following: The major portion of patients have been women varying in age from 30 to 63 years. They have usually been of nervous temperament. No other important fact has been demonstrated relative to the etiology. The sites of predilection are the upper portions of the trunk, about the breasts, over the clavicles, extending over the shoulders and downward over the upper part of the back, also the neck, axillæ, and forearm. Lesions also have been noted over the abdomen, on the thighs, about the vulva; and co-incident lesions were noted by Hallopeau on the buccal mucosa, and in one case in his report, on the vaginal mucosa. The temple was affected in one of the atypical cases.

The characteristic lesion is an irregular, often polygonal, flat-topped, white papule. In the case of Morrant Baker, some conical papules were noted. The white color of the lesions is striking and has been compared with that of ivory and mother-of-pearl. At times a distinct yellowish tinge is noted. The papules are firm to the touch, neither elevated nor depressed, but slight elevation may be present. They bend with the skin and when grouped may become wrinkled. As a rule no areola is present, but at times a rosy or moderately pigmented zone surrounds the papules. They may be discrete or grouped and most cases present both types. When grouped to form plaques, the outline of the individual papules forming the plaques can be determined. Each papule has on its shining, smooth surface from one to several (sometimes as many as twenty) black or dark horny, comedo-like plugs, or minute pit-like depressions, which show the former site of the horny plugs. These elements are situated at the pilosebaceous or sweat-pore orifices, and are most important from the viewpoint of diagnosis. The wall of the pit-like depressions is of the same nature as the horny plug.

The plaques vary in size up to several cm. in diameter. They show on their surface the outlines of the primary papules containing the horny plugs, or exhibit minute

depressions; and the whole plaque shows the peculiar shining white surface characteristic of the primary lesions. A linear arrangement of the papules is at times noted, similar to that seen in ordinary lichen ruber planus. There is usually no clinical sign of inflammation. The lesions, both papules and plaques, are persistent, but after a variable time either from treatment or spontaneously they undergo resolution and leave a delicate, smooth, white, soft, atrophic area of the size and shape of the original lesion, whether it be a discrete papule or a larger plaque. In one patient seen two years after complete involution of the lesions the atrophic scars were still present. The subjective sensations vary. Itching is the rule, but it is usually moderate in grade. A pulling or drawing sensation is described by some patients while in others no subjective sensations are present.

Acute lupus erythematosus is reported by F. Bertram and F. W. Enrich [9] in a 15-year-old girl who had been out of sorts for some days before medical advice was sought. She then complained (the beginning of April, 1908) of headache, loss of appetite and a little nausea. Soon these symptoms abated sufficiently to permit her to return to school, but after a few days they reasserted themselves, and she took to her bed. Slight evening rises in temperature were next noted, from 99° to 99.5° F. Generally a bright, high-spirited girl, she now lay in bed, pale, listless, with closed eyes, but keenly alive to all that was going on around her. The pulse-rate was not increased. She rather shunned the light and was unusually sensitive to cold. The conjunctivæ were slightly injected. The tongue was moist, furred, broad, indented at the edges and what attracted particular attention, was very tremulous. There were no sordes; the lips and gums were pale. The breath was somewhat offensive, and further examination of the mouth disclosed two ulcers on the hard palate, one on each side of the raphé, each nearly 1 in. in length and ¼ to ½ in. wide, dusky red, with irregular, flat edges, and bleeding readily on touch, but not tender. There was a similar but smaller ulcer on the posterior wall of the pharynx. The patient

(9) Brit. Med. Jour., Nov. 13, 1909.

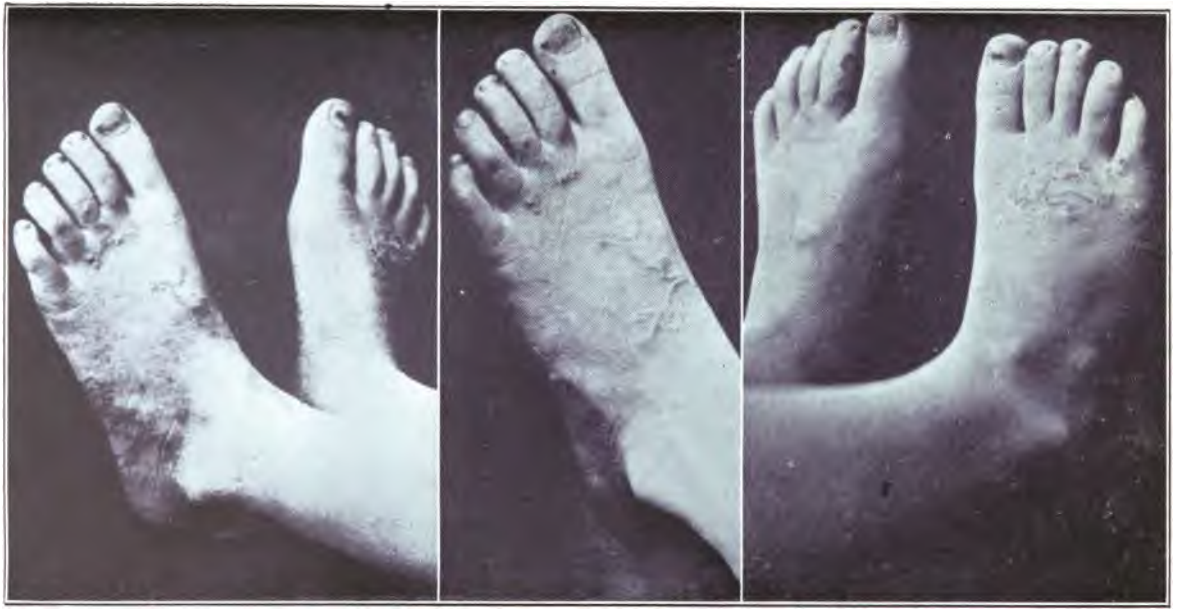

Plate IV.

Larva Migrans: Six year old girl two months after onset. Case of Dr. Marcus Haase, Memphis, Tenn. *Jour. Cut. Dis. Aug.* 1910.

was quite unaware of their existence, and had made no complaints respecting them. No glands could be felt.

A remarkable appearance was presented by the hands and feet. The skin over the back of the second and third phalanges of each finger and toe and over the terminal phalanx of each thumb was thin, as though tightly stretched over the bones, yellowish-white and waxy in appearance. Around each nail this color changed to a reddish-purple mottling, and the skin was shrivelled. Around the nail of each little finger the skin was very superficially ulcerated, and as though worm-eaten. The palmar surface of each finger-tip was similarly discolored and shrivelled. On the hypothenar eminence were splashes and dots of purplish-red, not raised above the level of the skin, and a few delicate patches were also seen on the ball of each thumb. The finger-tips were a little tender, the toes distinctly so. The lobes of the ears were slightly swollen, dusky-red, and scaly. These changes were symmetrical, but rather more pronounced on the left side. They had been noted by the mother some four months before, but no special notice was taken of them, the child having in previous winters suffered from chilblains, for which these patches were, very naturally, mistaken; it was noticed, however, that they were painless on this occasion. The knee-jerks were faint and very difficult to elicit. No changes were found indicative of visceral disease. The blood presented the characters of secondary anemia; the red cells numbered 2,500,000; the white cells, 7,000; the hemoglobin (Sahli) was 35 per cent.; there was a slight poikilocytosis. The Widal test was negative.

During the following week the symptoms persisted with little change. The temperature rose a little higher in the evenings (100° F. or over), and often failed to reach the normal in the morning. There was at the end of that time a fresh development in the form of a purplish, tender, doughy swelling over the left malar region, of the size of half a crown; and the epidemis over it felt thickened, and was dry and scaly. The mottling on the finger-tips and toes was more deeply colored and more extensive; the skin over the backs of the fingers

looked thinner and more glossy, and was difficult to pinch up; so also was the skin over the front of the tibiæ.

Up to this point no diagnosis was made although the attendants inclined towards lupus erythematosus. Within a couple of days a patch similar to that on the left cheek developed over a corresponding area on the right side, and a connecting streak of purplish discoloration traversed the bridge of the nose, thus completing the bat's wing arrangement of the eruption. By this time the eyelids had become swollen as well as the nose and cheeks. The case was now clearly one of acute lupus erythematosus with a bad prognosis. From that day onward, that is, from the end of the third week, the disease progressed rapidly. The temperature gradually mounted higher and the rash spread, appearing on the loins in the shape of small, purplish, slightly elevated patches; then on the buttocks, on the back and sides, always more or less symmetrically arranged. The spots on the sides were grouped as though following the lines of the intercostal nerves. The spots on the lateral aspects of the hands began to spread upwards, but the backs of the hands and the center of the palms remained comparatively free. In a few days the spots became confluent. The patch on the left cheek developed one or two small herpetiform blebs, with clear serous contents. Three days before death the skin began to break superficially, and soon a diffuse hemorrhagic exudation issued from minute points on the skin of the back, buttocks and face. One would have thought that it would be exquisitely painful for the patient to be handled while in such a condition, but it appears not to have been so. She complained far more of the least exposure to cold—even of the touch of a cool finger at the wrist—than of any discomfort caused by necessary manipulations. The face finally became an unsightly mass of boggy swellings from which blood-stained fluid trickled; crusts formed in the nostrils and on the lips; blood oozed from the ulcers on the roof of the mouth; and during the last two days of life there was trismus, rendering an efficient cleansing of the mouth impossible. During these last three days the temperature ranged from 105° to 106° F., and death

ensued, preceded a few hours by a convulsion, one month from the first day of observation.

With the exception of a little albuminuria during the last week and of some dilatation of the heart towards the end, there were at no time any symptoms referable to any internal organ. A week before death a further examination of the blood was made both bacteriologically and histologically, with negative results.

At the necropsy, the spleen was found to be a little enlarged and pulpy, the liver a little fatty; and there was cloudy swelling of the heart muscle, liver, and kidneys. Though every organ was subjected to microscopic examination, nothing else was found except a single small calcified mesenteric gland. There were no signs of tuberculosis, old or recent. Films made from every organ were examined for bacteria and protozoa, but nothing suspicious resulted. The epithelial layer of the skin, particularly the *rete Malpighii*, was markedly thickened in places. There was a diffuse cellular infiltration of the corium; in other places the *rete* was unusually thin. The more minute histologic changes of the skin could not, however, be studied, as the rest of the specimen was unfortunately lost during a removal.

A diagnosis of acute disseminated lupus erythematosus (Kaposi) seems justifiable. The initial discoloration around the finger-tips, so like that of chilblains; the affection of the lobes of the ears; and, later, the bat's wing arrangement on the face, are highly suggestive, if not characteristic. The principal objection that could be raised against the diagnosis is the development of minute blebs on the malar regions. Bullæ are said not to be a feature of the disease. Kaposi in his earlier publications refers to the occasional formation of minute bullæ and serous exudations, principally over the cheek bones, as in this case. Subsequent observers have now and again noted the same occurrence. The bullæ were certainly not associated with erysipelas; the *erysipelas perstans* which Kaposi mentions as of frequent occurrence was absent.

A very unusual feature was ulceration on the hard palate, the buccal mucous membrane otherwise escaping. Trismus has not previously been noted. Very remarkable

was the contrast between the objective symptoms and the patient's actual complaints; on the one hand, an acute diffuse affection of the skin, with serous and hemorrhagic effusions and exfoliation of the horny layer, and ulceration of the hard palate; on the other, only headache, general malaise, photophobia, and acute hyperesthesia to cold. To this very marked hyperesthesia there is no reference in the literature, yet it was her constant complaint, not only when the temperature was high, but in the earliest stages.

The general symptoms were those of a severe toxemia at a time when cutaneous changes were still slight and confined to fingers, toes and ears. These toxic symptoms steadily increased in severity, but the patient never lapsed into a typhoid state. Tuberculosis is considered by some an important factor. This case, however, does not support this view; the family history showed no tendency to tuberculous infection, and there was no sign of tuberculosis of any organ; the one calcified mesenteric gland may safely be discarded. That the process must be an acute infection no one can doubt who has watched such a case, especially when neither erysipelas nor pneumonia (the most frequent complications of the disease) have blurred the picture.

As for treatment, everything conceivable was tried in turn, beta-naphthol, quinin, mercury by the mouth, atoxyl injections in the later stages, ointment and plasters, prolonged warm baths, and lotions. Ointments were badly borne. Lead lotion alone gave the slightest relief.

Impetigo, according to J. H. Delcourt,[2] is auto-and hetero-inoculable. Its elementary lesion is a superficial vesicle which very early breaks up. Theoretically in the very beginning a vesicular liquid appears clear, but when seen by the physician it is sero-purulent, unlike ordinary varicella in which the liquid long remains limpid. Later, the vesicles become pustular. Sometimes they appear pustular from the onset. On the surface of the erythematous spots, around the chin (their favorite site), on the forehead, on the nose, on the scalp and on

(2) New Orleans Med. and Surg. Jour., March, 1910.

some varied parts of the body, there appear some small, acuminate, discrete or confluent pustules, their size varying between a split pea and a lentil or larger, or again being intermediate in size between varicella and pemphigus.

These epidermic pustules are pustulo-vesicles, or at times pustulo-bullæ, resulting from the cleavage of the horny layer over the granular layer, leaving intact the generative layer of the epidermis; whereas in the dermic pustules we have the destruction of the generative layer or papular ground, with their consequent scars, as in variola and some varieties of acne. The pustules have an ephemeral existence. After a few hours they break down, secreting some kind of a yellowish, thick and somewhat phlegmonous liquid. On the spots occupied by the pustules appear superficial ulcerations which concrete into angular, purulent crusts, looking at times like concreted honey, the color of which changes under atmospheric conditions. In a few days these crusts fall off, leaving a red stain, which vanishes gradually.

In some facial impetigo the crop of confluent pustules is so thick that the whole face seems a mass of festering crusts of a black, dirty, scaly appearance. To this condition is given the name of *impetigo larvalis*. Such is the common variety of impetigo. But with this, and either as an extension from the skin, or from some particular influence, impetigo invades the mucous membranes and causes all sorts of lesions and complications, the gravity of which contrasts sharply with that of the cutaneous forms. On each side of the commissure of the lips there may occur a large ulceration covered by a gray, whitish layer. The patches are one-half on the skin of the lips, and one-half on the mucous side. These prove very obstinate and are perniciously contagious, especially among school children. Inside the lips, on the edges of the tongue and palate, large patches of diphtheroid membranes spread out. They are somewhat easy to remove, leaving a rosy, superficial ulceration. This form of impetiginous dermatitis spreads with decided facility among school children. Differentiation from diphtheritic membranes is not difficult since the latter are thicker,

more grayish, not so easy to remove, and since their localization is especially on or about the throat, tonsils and soft palate. Bacteriologic tests clinch the diagnosis.

Sabouraud affirms the rôle of the lymphatic constitution in the evolution of infectious forms of impetigo. According to Bourcy scrofula is a trouble of nutrition, hereditary or acquired, little known in its essence, but very well known in its manifestations and determinations. It produces a special vulnerability under the most trifling circumstances and influences, as far as certain tissues are concerned. Hence the eczema, the furunculosis, the coryza, the hypertrophy of the tonsils, and generally all forms of adenoid formations. None of these are really specific, but the ground on which they grow by preference is special. This explains their distressing tenacity, their relapses and their chronicity. The lymphatic system is responsible for chronic thickening of the tissues, enlargement of the lymphatic glands around the neck, and this especially imparts to some the scrofulous facies so characteristic of some families.

Delcourt claims that of old scrofula, one part belongs to attenuated tuberculosis; another, less important, to hereditary syphilis, as, for instance, interstitial keratitis and some glandular affections of the neck; and, last, but not least, one part belongs to those ordinary infections by common pus organisms, kept up through particular systemic conditions. Sabouraud considers the streptococcus the pathogenic culprit. Griffon, Balyer and Curt hold for the staphylococcus; Leroux thinks that the streptococcus is the habitual agent, but that the staphylococcus occurs from a secondary infection of the primary vesicles, during their short and exposed existence. This contention Delcourt believes the more likely, since the staphylococcus is constantly and habitually present in the skin under normal conditions.

F. C. Curtis [3] remarks that the impetigo of childhood, spreading among the children of a tenement or school because of their intimate relations, has always been manifested in little epidemics. In the adult male it is modified by the thicker skin of the face and the care of the

(3) N. Y. Med. Jour., Nov. 20, 1909.

subject. It is infectious in origin and commonly comes with a history of appearing a day or so after shaving in a strange barber shop. The patient commonly presents himself with a number of flat vesico-pustules on his cheeks, chin, and neck, of the size of a pea or dully developed to the size of a cent. Some of them after two or three days will have dried down to superficial yellowish crusts which really look as if they were stuck on with mucilage. The process varies in intensity; sometimes the patients show three or four large and thick crusts on the throat or cheeks the size of a dollar, formed from large bullæ or the coalescence of smaller lesions. These soon fall, for the process is superficial, leaving a red moist surface which soon dries and later fades away. Sometimes there is a little papular dermatitis which lasts longer, but commonly the appearance is classic to a degree. The course of the individual lesions is short. New ones constantly developing form the clinical picture, which consists of small pea-sized or larger finger-nail-sized, flat, moist, vesico-pustules, desiccating lesions with yellow crusts, all very distressing and disfiguring, but without causing subjective symptoms of note. Left to itself impetigo will continue indefinitely, but it is readily cured, for the pus cocci growing on the surface of the skin are easily destroyed by cleanliness and antisepsis. Washing the affected surface frequently with soap and borax solutions, and the application of a mild ointment of boric acid and ammoniated mercury suffice. Its significance is its contagiousness, sometimes a number of cases come from one barber shop.

Blastomycosis. According to R. H. Fowler[4] this usually begins as small papules which may coalesce and become covered with a scab. The border is usually thickened with fungus-like projections. Between the elevations pus may form, or exudate may occur in sufficient quantity to dry into a large crust. It resembles lupus in that cicatrization may be going on at certain points while the lesion is encroaching upon others. The course is chronic. Lesions in the mouth and especially of the lips have been recognized. The point of entrance of

(4) Ill. Med. Jour., November, 1909.

the organisms is still unknown; the skin, however, is not necessarily the only tissue invaded.

A 45-year-old woman, married, had pain in the right breast in March, 1908, aggravated by stooping over and by taking a deep breath. This continued for a few days, when a small swelling appeared in the upper mammary quadrant; this subsequently disappeared entirely with alleviation of the pain. In June the patient was suddenly taken with a violent frontal headache. She did not vomit or bleed from the nose. This was followed by a moderate, persistent fever (diagnosed as typhoid fever), with constipation and weakness. In August the breast swelling reappeared, became painful as before, developed to the size of an egg, advanced toward the median line and migrated downward. In November an abscess in the right inner mammary quadrant was opened, with a temporary fall of the fever; later two more abscesses were opened near the midline, over the sternum. The discharge from the upper sinus persisted despite all treatment; the lower two were more amenable to treatment, but did not entirely heal. The patient lost 33 lbs. during the week the abscesses were draining, felt very weak and had a slight cough.

She was admitted to St. Luke's Hospital on March 11, 1909, complaining of multiple sinuses of the chest wall with persistent discharge from the upper tract. On admission the patient had a temperature of 100° F., a pulse of 112, a respiration of 24. The blood examination showed a normal numeric and differential leucocyte count, the red blood cells were normal in number, the hemoglobin was 80 per cent. Urinalysis showed a very faint trace of albumen and a few hyaline casts. General examination showed a poorly nourished, delicate, middle-aged woman of extremely nervous temperament. The skin and mucous membranes were pale. On examination of the chest wall, the mouths of three sinuses presented themselves, one at the upper and inner breast quadrant on the right side and two near the right border of the sternum. There was no discharge. A probe showed a communication between the lower and middle tracts. Injection of methylene-blue proved that all three communi-

cated. No exposed bone could be felt. The heart, lungs, abdomen and extremities were normal.

A Widal test made on the third day showed very slight clumping with active persistent motility in three dilutions, at 1 to 20, 1 to 40 and 1 to 80. Under ether narcosis, March 15, Abbe made a four-inch incision connecting the three sinuses, turned the breast downward and outward, reflected the muscles and exposed the bony chest wall. The second rib, three inches from the chondral junction, was found bared of periosteum for a short distance at the inferior border, and the seat of a small purulent collection. The upper tract led to this situation. The rib was resected at this point. The tracts and chest wall were thoroughly curetted, the breast turned back into place and the wound packed with yellow gauze. The first cultures made from the rib abscess showed staphylococcus; later the same cultures developed blastomycetes. Microscopic examination of granulation tissue also revealed them.

A persistent temperature, weakness and a very slowly granulating wound kept the patient in the hospital. On the twenty-fifth day after operation diarrhea set in. There were from four to eight loose stools a day, causing much prostration, persisting for eighteen days despite colonic irrigation, bismuth and lead and opium pills. Cultures were made to determine the cause of the diarrhea if possible. The ordinary colon group was isolated. No typhoid organisms or parasites were found. Up to the onset of diarrhea the patient had received potassium iodid in gradually increasing doses up to 21 grains a day. This was stopped. Diarrhea has not since returned. On the thirty-second day a perirectal abscess developed; incision evacuated a very small amount of pus. Cultures made from this pus were negative for blastomycetes. The patient when last seen had a nicely granulating area on right chest about three inches long and one and one-half inches in width. There was still an uncovered area of cartilage, and bare bone could be felt at the site of resection. The temperature was 100° F., having come down on the forty-seventh day after operation. Previously it had persistently risen, ranging

from 102° to 104° F. She was much improved and had gained strength after cessation of the diarrhea.

Eczema, according to Isadore Dyer,[5] is a catarrh of the skin. Just as catarrh of the respiratory tract begins, so an eczema begins. The catarrh of the respiratory tract begins with an area or patch of congestion, never as a single lesion, or dot, or particle of inflammation. Just so eczema always presents as an area or patch of eruption of the skin, and never as a single lesion. With eczema the catarrhal process always begins in the *rete mucosum,* or mucous layer of the epidermis. If this process be limited, congestion follows, and the expression on the surface is hyperemia or erythema, and this may be the only evidence. As the congestion subsides, a natural death of the epithelial cells ensues and scaling follows. If the congestion persist, the erythema continues, the exudate spreads to adjacent skin tissues, infiltration results and a chronic catarrhal condition is established with scaling, epidermal thickening, and other symptoms of the disease.

If the exudate be excessive a logical tension of the skin follows with a rupture of some or all of the outer epidermal layers, in the first instance, bubbling up to the surface and pressing into form tiny cavities filled with serum, and called vesicles; in the second instance, the exudate macerates the super-imposed epidermal cells and these are washed or broken away, leaving a denuded, moist, weeping surface. In either case areas of inflammation are present, with evident catarrhal exudate, making vesicular eczema or weeping eczema, as one or the other process prevails.

At times, these steps merge as they develop and both forms are intercurrent; even where vesicles form they are so thin-walled, so small and so close together that they are short-lived and run into each other, producing a raw surface, which is rapidly covered by the drying serum and the dead epithelial cells. These form a protective crust and this may be firm enough to establish a new forming epidermis and so end the disease. Often, however, the surface of the serous discharge is a ready me-

(5) Amer. Jour. Derm., July, 1910.

dium for coccic culture, and pus organisms enter the field, spread beneath the crust, and add a new phase or new form to the disease, so-called pustulating eczema, or *eczema madidans.* Pustulating is a better term than pustular, for no eczema begins as a pustule and a pustule as such is no part of an eczema. A pustule may develop outside of an area of eczema from pus infection, derived from the pus of a crusted pustular eczema, but this is always an accidental lesion.

Often the process of eczema is slow—the erythema and a certain amount of infiltration developing gradually occasioning a congestion of the papillary division of the corium or middle section of the skin. These bloodvessels swell and force the congested epidermis to the surface, but as the exudate is no longer free, the surface of the skin shows masses of tiny, closely aggravated elevations, known as papules, making papular eczema. Here again the eruption comes in patches and not in single dispersed lesions.

Thus the catarrhal process is established, at first limited in area, and expressed in patches of redness, attended by vesiculation, papulation, or pustulation, or with no other actual signs than hyperemia, erythema and scales. As the catarrhal state of the skin is acute, with superficial lesions, or chronic, with profound infiltration and scales, so the types of eczema may be graded and its variants discussed.

Eczema cannot occur as single lesions, but must occur in patches, if the catarrhal method in the pathologic anatomy of the disease be accepted. This is the way in which the disease makes its attack and its progress. Any disease with disseminated vesicles, pustules, papules, or with scaling areas, circumscribed in limited, small fields, cannot be eczema. For further diagnosis the physician must depend upon the particular arrangement of the patches of eruption, to exclude eczema. Eczema, in its ordinary acceptance and types, is never clearly marginated and its patches are irregular at the borders, inclined to be diffuse so as to be hardly determined as distinct from the merging healthy skin.

The varieties of eczema, so far as form is concerned, may be divided into acute and chronic and these in turn may be termed:

A. Acute forms.
   1. Hyperemic or erythematous.
   2. Papular.
   3. Vesicular.
   4. Weeping or eczema rubrum.
   5. Crusted,
   6. Pustulating—all acute forms.

B. Chronic forms.
   1. Erythematous or erythemato-squamous.
   2. Papular.
   3. Infiltrated.
   4. Excoriated or ulcerative.
   5. Indurated or hyperplastic.

Acute eczemas are prone to appear on the exposed or tender parts of the skin and especially adjacent to the muco-cutaneous junctures. The chronic eczemas, on the other hand, are much more common on the lower extremities, and on dependent parts of the body. The eczema of gout and rheumatism finds place on the hands, feet, ankles and legs usually, seldom anywhere else. The eruption comes as a papular one, but quickly subsides into a thickened erythematous area, with scales and excoriations, due to the uncontrollable scratching.

The following table gives the relation between causes, location and type.

External Causes.	*Location.*	*Type.*	*Variety.*
Friction (hatband, clothing, etc.).	At points of pressure.	Erythematous.	Acute.
Irritation from drugs (as iodoform); plant poisons (as rhus, sumac); from occupations.	At point of irritation.	Vesicular and excoriative.	Acute.
Infection. Micro-organisms (e. g. diplococcus); as consequent upon some precedent condition of the skin.	Exposed parts of the body, genitalia often.	Vesicular. Pustulating.	Acute.
Varices.	Legs, lower third.		
Parasitic conditions following scabies, ringworm seborrheic dermatitis, etc.	At certain sites of particular selection (buttocks in scabies and in seborrheic dermatitis, the face, scalp, crural region, etc.).	Papular. Pustular. Crusting. Excoriative.	Acute.

Internal and General Causes.	*Location.*	*Type.*	*Variety.*
Intestinal Disturbances. Intoxination, indigestion, constipation, hemorrhoids, etc.	Almost always at the extremities; exceptionally the genitals.	Erythematous. Vesicular. Papular and Infiltrative.	Acute. Chronic.
Rheumatism.	Extremities; (lower usually).	Erythemato-Squamous.	Chronic.
Gout.	Legs and hands.	Erythemato-Squamous.	Chronic.
Glycosuria.	Genitals.	Vesicular; (pustular).	Acute.

Liquid Carbonic Acid Snow, introduced as a snow into dermatherapy by W. A. Pusey, in 1908, and three years previously in the less manageable form of spray by Juliusberg, has been the dominant note in the treatment of lupus erythematosus, nevi, moles, tattoo marks, etc. J. H. MacLeod [6] advises the following procedure: An iron cylinder containing 7 lbs. of liquid carbon dioxid was obtained and fitted with a central tube so that the cylinder might be placed vertically in an iron stand while the carbon dioxid was allowed to discharge itself. A cylinder of this size is not too heavy, and can easily be lifted. The nozzle of the cylinder is horizontal, and the key is at the top. When the key is turned so as to open the valve, a jet of carbon dioxid rushes out horizontally with great force, and is quickly volatilized. The snow is obtained by allowing the carbon dioxid to play on a piece of baize folded in the form of a conical sugar bag about 9 in. long. This is held in the left hand over the nozzle, so that the nozzle is well inside the bag, without being in contact with the baize, and the controlling key is turned gently by the right hand. The carbon dioxid jet is allowed to play into the bag for 15 to 30 seconds or longer according to the amount of snow required. The baize is then spread out on a table, and is found to be thickly coated with fine snow. The snow is scraped off with a teaspoon, and the requisite applicator filled with it. The applicators are funnel-shaped, like aural specula, and are made of vulcanite. Their diameter at the narrow end varies from ¼ in. to 1 in., and they are fitted with rod-shaped plungers, by means of which the snow is pressed down. When filled, the applicator is transferred to the lesion to be treated, so that the snow is in contact with the skin, the applicator being held firmly by the left

(6) Brit. Med. Jour., Jan. 20, 1910.

hand, while the plunger is held by the right hand and the requisite amount of pressure exerted. During this procedure, it is necessary to wear a glove on the left hand to protect it from the extreme cold.

The effect of the snow on the tissue is dependent on the length of exposure and degree of pressure. No hard and fast rules can be laid down as a guide in these matters, as each case requires to be treated on its merits, but a short experience will enable the operator to judge of them. The degree of pressure should be just sufficient to cause a slight depression in the frozen tissue when the applicator has been removed. After an application of five seconds the underlying skin is frozen into a solid white disc, about ⅛ in. thick. This thaws in about a minute. Some hours afterwards, it may be ten or twelve, the inflammatory reaction sets in, and a blister may form. This subsides, and perfect healing takes place in a few days. Exposures of healthy skin up to thirty seconds' duration are followed by complete healing; should the exposure be prolonged to a minute or longer sloughing is apt to occur with subsequent scarring. In the case of soft lesions, such as vascular nevi, the exposure should not exceed thirty seconds, so as to avoid scarring; in the case of hard lesions, such as warts, rodent ulcers, etc., a more prolonged exposure is indicated, as it is the destructive effect which is chiefly required. If the lesion to be treated be greater than the diameter of the largest applicator, it is attacked piecemeal, or a piece of thin lead is cut the size of the lesion and placed between it and the applicator, as the metal conducts the cold, and by it irregularly shaped lesions can be treated exactly. When lead is interposed a longer exposure is necessary than when the snow is applied directly to the skin. The application is not unbearably painful, and no anesthetic is required, the cold itself having an anesthetic action. The amount of pain varies according to the situation of the lesion. Some patients scarcely feel it, while others have said that it was as painful as a fine-pointed actual cautery.

When the reaction sets in there is the usual discomfort associated with inflammation. Should the application

result in vesication and breaking of the skin it is advisable to dress the part with a mild antiseptic ointment to prevent contamination with pyogenic micro-organisms. MacLeod has treated nevi very successfully. The largest was 2 inches long by 1½ inches broad. In superficial lupus vulgaris it is of value, but in the deep-seated form, it is less effective and penetrating than the Finsen light. In lupus erythematosus, while it gives good results, it is in MacLeod's opinion not as good a local remedy as zinc ionization. In superficial rodent ulcer it acts well.

E. R. Morton [7] has employed the solid carbon dioxid pencil. As the tissues give up their heat the crayon surface becomes gaseous. The surface in contact with the part under treatment is thus being constantly renewed. To say that the crayon is "in contact" is probably not literally correct. It is more likely that it is separated from the part under treatment by a thin layer of gas. For this reason, it is possible to hold a small piece loosely in the hand without discomfort. It will thus be seen that some pressure is necessary to produce an effect, but owing to its rigidity one can make as much pressure as may be necessary. It is this matter of pressure that gives carbonic dioxid snow such a great advantage over other refrigerants.

The solid gas evaporates very slowly. A crayon 5 inches long and 1 inch in diameter will last from one to two hours if left in an ordinary room. Wrapped in cotton wool it loses about half its weight in a period of four hours. With such a crayon Morton has made over 30 applications, a piece about one and a half inches by half an inch remaining. The temperature of the crayon is constant. The only variable factors in dosage are time and pressure. There is no difficulty about the measurement of time, and a holder with a spring inside, which is adjustable, will solve the matter of pressure. Morton trims the crayon roughly to the shape of the nevus, and prefers it to be slightly larger. It is next applied and firmly pressed down, so as to drive the blood out of the part, or to arrest the circulation. The average duration of the application is about 40 seconds. If there be bone

(7) Brit. Med. Jour., Jan. 29, 1910.

immediately beneath, a shorter time will do. If the application is made over a soft place such as the thigh or abdomen, it should be a little longer. A "port-wine mark" is best treated with a moderate degree of pressure, depending on the depth of the lesion. For a cavernous nevus the end of the crayon may be the same size or slightly smaller than the area of the growth. A long application with deep pressure should effectually freeze the whole mass.

Carbonic dioxide snow is very successful for moles and other blemishes; it seems to have a favorable influence on lupus erythematosus, and Morton has successfully treated patches of lupus vulgaris. It answers excellently for warts. In the treatment of the latter, a long application is necessary on account of the poorly conducting properties of the growth. He does not time the application, but after trimming the crayon to the size of the growth he uses firm pressure until a narrow zone of healthy tissue around the base is frozen. If he stops before this the result is not satisfactory. In the keratoses accompanying *x*-ray dermatitis, brief applications answer exceedingly well. The list of diseases to which this agent is applicable will probably be extended very greatly.

In treating a capillary nevus, ascertain if the growth be spreading, and if it is, all efforts are directed towards preventing this progressive increase in size, by making a series of punctures, about one-eighth of an inch apart, along the nevo-cutaneous margin, so that the influence is exerted as much in the healthy skin as in the nevus itself. If the nevus be a small one, less than three-quarters of an inch in diameter, probably nothing more will be required, and except in the large ones this is a very convenient point to stop for the first application. The growth is now safe against spreading, and it sometimes happens that the vessels feeding it are so seriously interfered with by what has been done that after a period of two or four weeks the growth has undergone a reduction in size as well as in depth of color. In such a case it is obvious that there will be less to do to finish it off, and in this way we conform to the principle of destroying as little of the original tissue as possible. With the larger

capillary nevi it is, of course, advisable to go over the surface as well as the margin. The punctures should be from one-eighth to a quarter of an inch apart, and should go through the whole thickness of the skin. In nearly all cases the cautery should be quickly withdrawn the moment the sense of resistance, which the skin gives, is lost. This prevents the action of the cautery extending too far.

Morton's reasons for insisting on going through the skin are two; in the first place it is otherwise impossible to be sure that the nevus will be affected through its entire thickness, and secondly, it is much less painful afterwards. After a nevus has been treated in this way the immediate result is a pink scar with a somewhat pitted surface, the pits corresponding to the individual punctures. As time goes on the surface becomes paler and more uniformly smooth. In the case of children seen about 12 months afterward the area is soft, smooth, and elastic, and as to color scarcely to be distinguished from the surrounding skin. The pitting left by the punctures is still present, but not very noticeable. It tends to become less perceptible as time goes on, but slight traces can be found years afterwards.

Carbonic Acid Snow in Lupus Erythematosus. Carbonic acid snow is urged by E. W. Dittrich[9] in lupus erythematosus. A drum of liquid carbonic acid can readily be obtained and the gas converted into snow. With a little practice, this snow can be made to be of almost the consistency of ice, becoming then more or less translucent. The solid stick thus obtained, which in melting, *i. e.*, vaporizing, reduces the temperature of the surrounding atmosphere and everything it comes in contact with to about 80° to 90° below freezing, can be shaped by whittling it down with a knife to any desired contour. Thus it may be made to cover the lesion completely, and care should be taken to include the inflammatory margin by causing it to extend a few millimeters into the healthy tissue. The application is followed by a more or less profound congelation of the treated area, the intensity of which depends upon the solidity of the

(9) Am. Jour. Derm., August, 1910.

stick, the pressure exerted and the duration of the contact. A local dermatitis is then observed, resulting in the formation of a bulla. This should be left undisturbed, when it will dry up forming a protecting crust. This crust may remain until it drops off. The operation may have to be repeated. Large crusts should be removed sooner, as a possible underlying ulceration may produce an undesirable scar. The raw surface may then be dressed aseptically. The cycle is completed in about 2 to 3 weeks. Meanwhile other spots may be treated in whole or in part. The result is remarkable. In place of a red, elevated, disfiguring lesion, a whitish soft, pliable scar will be seen, which is devoid of the gaping, granular orifices, so often seen in cases that have been treated for a long time. This scar does not differ very much from the surrounding healthy skin.

Carbonic Dioxid Snow in the Dermatoses. M. L. Heidingsfeld [1] has also had good results in many dermatoses from carbonic acid snow. The snow, after it has been compressed into convenient size and shape, is held by fingers protected with chamois or gloves and applied with moderately firm pressure to the area to be treated. Pressure should be uniform, moderate for the more superficial lesions, and firmer for those more elevated or deep-seated in character. Applications should be carefully timed from 10 to 30 or 40 seconds, according to the superficial, deep-seated or elevated character of the lesions, their situation under delicate, thin or thick, resisting epidermis, the amount of destruction and erosion of the tissues desired to be called forth. More complete superficial destruction can be accomplished with deep seated reactionary inflammation by several applications, repeated as soon as previous freezing has had time to thaw out. Applications are unaccompanied by much pain or distress, in the majority of cases, except over specially sensitive areas like the temples, nose, eyes, etc. They are usually more painful to light than firm pressure. Pain immediately following the application can be materially relieved by hot compresses. When the applications are made over depressed surfaces, the area to

(1) Ohio State Med. Jour., Aug. 15, 1910.

be treated should be previously pinched up with the fingers of the assisting hand in order to protect the surrounding tissues from the action of the snow.

As soon as the application is completed, the affected area is strongly indented, blanched and frozen to a solid consistency. Blanching and indentation rapidly fade and are followed by erythema. The erythematous lesion soon becomes a wheal, and in a few hours a large, well-distended clear-looking bulla. These changes are by no means constant. Occasionally bullæ do not occur, despite striking similarity in method of treatment and location of the lesion. To secure the best cosmetic result and the greatest comfort to the patient the surface to be treated should be relatively small in extent, not to exceed one-half to one square inch in area. Where a relatively large surface requires rapid treatment, it is advisable to apply the snow to relatively small areas, well separated from each other, the intervening space to be treated in like manner at intervals of one to two weeks, after the inflammation from the previous sitting has disappeared. The individual areas thus treated should be fairly uniform in size and distribution, and rectilinear in outline, all of which can be carefully regulated by proper attention to the prismatic outline of the pencil of snow. The after-treatment is comparatively simple, the parts being covered with a protective dry dressing to prevent the early rupture of the bulla. Thereafter, the areas are treated as simple inflammation.

Heidingsfeld has employed the snow in 10 cases of lupus erythematosus, 3 vascular and 5 pigmented nevi, 5 tattoo marks, 2 chronic palmar eczemas, 2 cases of chloasma, 2 cases of warts, 1 of lichen ruber verrucosus, 1 of parakeratosis variegata, 1 of condyloma acuminata and 1 of *x*-ray burn.

Skin Varnishes. According to H. G. Klotz [2] many attempts have been made to find substitutes for ointments in order to do away with soiling of clothes and the use of bandages. The simplest method is the substitution of potent or indifferent powders, yet their action is too superficial and evanescent. The same ob-

(2) Therap. Gaz., February, 1910.

jections hold in the case of aqueous suspensions or solutions (lotions). The precipitates left after evaporation do not stay upon the diseased skin sufficiently long to bring about an energetic effect. The problem is to bring the drug into contact with the skin in a more or less fluid condition, yet so that evaporation is rapid and the contact sufficiently intimate and prolonged. The clothes should not rub off the drug or absorb it. Various solvents and emulsions have been suggested, as well as various varnishes employed in the arts, those prepared with drying oils, alcohol, turpentine, oil, etc. It would seem proper to classify such preparations under the name of "skin varnishes."

In many instances the most suitable preparations to use are collodion and traumaticin, since they evaporate almost immediately and leave a permanent film which lasts for days and is not affected by water or moisture. Collodion also exerts a pressure upon the skin. The permanence of the film is, however, a disadvantage, since one cannot remove the layer of collodion at will, but is obliged to wait for the physiologic desquamation of the uppermost layer of the epidermis. It is therefore impractical to repeat the application. Furthermore, collodion and traumaticin do not adhere to moist surfaces, and the layer frequently breaks over places where there is much extension and flexion, as over joints. It follows that there may be no protection over areas that require it most, as in chapped and eczematious hands. The collodion dried on the edge is apt to increase the cracks and render them more painful. Collodion is also unsuited for larger areas of skin.

Many drugs can be incorporated with the collodion, such as sublimate, iodoform, etc., but where larger amounts are required, as in the case of salicylic acid, it is more practical first to dissolve this in alcohol, ether, or chloroform, then to allow it to evaporate upon the skin, and finally to cover it with a layer of collodion. This method of treatment is particularly suitable whereever chrysarobin is used for *trichophyton corporis,* even upon the faces of children. After the film falls off, the application is repeated as long as there are signs of

disease. Very often a single application is sufficient. This treatment may also be beneficial in psoriasis. Iodoform collodion will occasionally remove keloids of moderate extent after burns.

Ether alone or with alcohol is employed only to prepare strong solutions of salicylic acid for the cauterization of warts. In sycosis and parasitic disease of the nails Klotz repeatedly employed with good results a mixture of two parts of ether and one part of oil of wintergreen in order to bring about a deeper penetration of the salicylic acid.

Alcohol would seem very suitable since many drugs employed in dermatology readily dissolve in it, but since it evaporates completely without leaving any sticky residue, the precipitate drug will usually not adhere sufficiently to the skin. To meet this defect tinctura benzoini simplex may be used instead of alcohol, since this leaves a thin layer of resin, which keeps the drug in contact with the skin for a longer period. In this way Klotz has employed a 1 per cent. solution of mercuric bichlorid in superficial pigmentations, as in ephelides and in pityriasis versicolor, etc.

Alcohol alone is more suited for the various tars. These are usually of such consistency that they cannot be employed undiluted, while if mixed with alcohol they will leave a thin covering upon the skin. Aside from the odor these tinctures of tar are objectionable because they stain and soil the skin and clothes. Many substitutes for tar have been placed upon the market. One of the best is anthrasol. Its odor is not strong or disagreeable, but suggests tar. It is thin and light-yellow in color; it can be applied undiluted and it dries rapidly. It is miscible with alcohol in any proportion. Since the alcohol evaporates rapidly and leaves the tar behind, it probably makes little difference if it be applied pure or diluted. Anthrasol is not inferior in action to other tar preparations, but even if it were, the fact that it does not stain, and that it can frequently be used where other preparations cannot, renders it particularly valuable.

Tumenol, introduced by Neisser, is closely allied to tar. It is useful wherever tar and its preparations are indicated, and is markedly antipruritic. Like ichthyol,

it is employed in various grades of skin inflammation, particularly in the more mild, superficial type of eczema. Klotz frequently employed it in the form of the tincture recommended by Neisser, a solution in equal parts of water, alcohol, and ether. A 20 per cent. tincture can safely be used in place of the 10 per cent. originally recommended. It dries rapidly upon the skin and leaves a dark-brown, elastic layer not easily soluble in water. It is therefore indicated over parts apt to become saturated with urine or perspiration, such as the genitals, axillæ, various folds of the abdomen, and the skin about the anus. It is superior to ichthyol, which is too easily soluble in water.

Klotz has also used ichthyol extensively as a skin varnish. Pure ichthyol is too thick to handle easily, hence it is usually mixed with water in proportions varying from 1 to 4. If applied in the form of a varnish, a cotton brush is preferable to the usual camel's-hair brush, since its size can be better accommodated to the affected surface. The diluted ichthyol can be easily applied and rubbed into the exact area desired, and will rapidly dry to a thin but elastic layer which does not contract like collodion and does not break over the joints. Even disregarding the specific action of the drug, there are the following advantages: (1) Cooling off, owing to the rapid evaporation. (2) Exclusion of air and other irritating factors without the necessity of a dressing. At a temperature of 68° F. (20° C.) the skin will be dry after two minutes so that on touching it the finger is not discolored or sticky. If the weather is very hot and humid, it is better to apply after several minutes, some indifferent powder with an insufflator. In moist surfaces it is advisable to apply a very thin layer of absorbent cotton so that it may form a scab with the ichthyol. With very profuse secretion the cotton should be renewed with every application or fortified with an extra layer. Upon areas deprived of epidermis, ichthyol will give rise to a transitory burning sensation. With very sensitive patients some cocain or alypin solution may be used first. Ichthyol possesses the great advantage that it can easily be removed with water, alone or with

soap, and can be easily washed out of the clothes. Koltz does not recall a single case with disagreeable after-effects, though an idiosyncrasy may exist. In the majority of cases in which untoward effects have been observed impure preparations have been employed.

In severe dermatitis venenata, inflammation often reaches such severe grades that it suggests erysipelas. Ichthyol here rapidly controls the inflammation and prevents the spread of the disease, and is very easily applied. Most other remedies spoken of in the text-books are used in the form of moist dressings, but where large areas are involved these can hardly be used, or else are very troublesome, since the dressing has to be frequently changed. The use of ichthyol is much simpler, requires no further dressing, and a new application is not necessary oftener than every six to eight hours. According to Pfaff the active principle of Rhus toxicodendron is not an acid, but a non-volatile sticky oil which is converted by alkalies into a non-toxic, resinous substance. It is not decided whether ichthyol possesses a specific action against the toxin, but its reaction is alkaline, and its solutions on shaking foam like soap. Besides a mechanical fixation of the poison there also seems to be a chemical action. Ichthyol is also indicated in the less intense dermatitis caused by other plants, caterpillars, and drugs such as iodoform.

Ichthyol varnish forms an excellent dressing for burns of the first and second degree, especially if applied very early. In the milder grades ichthyol quickly relieves the pain and prevents the process from going any further. Even in more severe and extensive burns the prompt use of ichthyol may prevent blistering and convert the symptoms of the second degree into those of the first degree, so that finally only a horny scab will be thrown off. A patient in whose palm a box of matches caught fire had the affected part thickly painted with ichthyol, covered with cotton and bandaged. The patient kept at his work, and when the dressing was removed after several days nothing could be seen except detachment of the thickened epidermis. Ichthyol is also a prompt and convenient drug in burns due to the action

of the sun or other light; it can be applied to the face and hands in the evening, and can be easily removed in the morning. The earlier the application the better. Ichthyol is not to be recommended in burns of the third degree. It is excellent, however, in frost-bite, particularly of mild grade, about the fingers, feet, nose and ears.

The results of ichthyol treatment are less brilliant in chronic eczema, where it is desired to cause absorption of the infiltrated areas. The treatment is, however, satisfactory if the condition is rendered temporarily acute by energetic application of soap or caustic potash in varying strength, particularly if the ichthyol varnish is combined with salicylic soap plaster. The same treatment may be tried in psoriasis, lichen planus, and lichen simplex chronicus. Ichthyol if combined with chrysarobin will prevent the disagreeable after-effects of the latter, particularly the dermatitis around the diseased foci, and also the soiling of the clothes. Klotz uses the solution in chloroform, then applies a 50 per cent. solution of ichthyol over this when dry, and finally uses powder when necessary. In this way rather extensive areas of psoriasis may be treated without the slightest disturbance. By combining chrysarobin with ichthyol it is possible to use the former drug where otherwise it would be contra-indicated, as upon the scalp, owing to the danger of conjunctivitis, or on the scrotum, perineum and neighborhood of the anus, the seat of the exceedingly obstinate eczema marginatum.

Spirit Lotions in Dermatology. The following have been found of value in seborrhea, acne, pityriasis capitis and alopecia.[3] If the scalp be very dry, from 1 to 5 per cent. of castor oil should be added to the lotions:

℞ Beta-naphthol ..... gr. iss
Corrosive sublimate ..... gr. iii
Resorcin
Ammonium chlorid } ..... āā gr. viii
Chloral hydrate
Lavender water ..... ʒiv.
Misce. Fiat lotio.

℞ Corrosive sublimate ..... gr. iss
Salicylic acid ..... gr. iii

(3) Practitioner, January, 1910.

	Alkaline solution of tar Compound spirit of ether Spirit of rosemary	āā ʒss
	Alcohol	ʒii.
	Misce. Fiat lotio.	
℞	Oil of sweet birch. Oil of cade Tincture of soap bark Alcohol Misce. Fiat lotio.	āā mxv ʒv ad ʒiii.

Treatment of Herpes. According to Pautrier [5] herpes is characterized by miliary vesicles of the size of a pin's head, transparent and grouped in general on a zone of erythema. Its appearance is preceded by a sensation of itching and burning, but once formed the vesicles quickly lose their transparency, dry and give place to a small crust which finally falls off without leaving a cicatrix. The duration of the affection does not exceed two weeks. Besides the acute form, there exists a remittent form characterized by the fact that the eruption returns at more or less irregular intervals, always in the same region and sometimes always at the same point.

Three varieties are known; catamenial herpes, genital herpes (man), remittent buccal herpes. A fourth variety, not well known, and called by Brocq essential remittent herpes of the skin, is found habitually in the lumbar region, on one or other buttock, and the cheek. The former is sometimes preceded by neuralgic pains, sciatica, etc. It commences by a red spot about the size of a shilling, rapidly covered with miliary vesicles, and runs its course in one or two weeks, to return in two or three months, and so on for years. Intermittent herpes of the face is generally observed in children or young people. The seat is the center of the cheek, and more frequently the left than the right. Without any premonitory symptoms, the eruption takes place during the night, and in the morning a red patch is seen, which is soon covered with vesicles, and finally disappears in four or five days.

Although but slight in importance, this affection, by reason of its recurrent tenacity, may cause no little annoyance to young girls. Nothing heroic should be tried, as the affection gets well spontaneously in most

(5) Bull. Gen. de Thérap., Apr. 15, 1910.

cases. However, it may be well to prevent the infection in order to avoid a possible cicatrix. A warm lotion of camomile flowers may be applied 2 or 3 times a day, and at night a sedative ointment:

℞ Ichthyol ..... gr. xv
Oxid of zinc 3i
Lanolin 3iv
Vaselin ..... 3iv.

In the intervals between the eruptions the place may be rubbed with camphorated spirit. General treatment consists chiefly in the régime, which should exclude all heating foods.

Acne of Gastro-Intestinal Origin. Internally Sabouraud[7] advises the free use of alkaline waters or the employment of the following alkaline powder:

℞ Sodium bicarbonate ..... gr. v
Sodium phosphate
Sodium sulphate ..... āā gr. lss.
Sig.: One or two powders in water after each meal.

As an external application sulphur should be applied, either in the form of lotion or ointment. Vidal's lotion modified by the addition of zinc oxid is recommended. This has the following composition:

℞ Precipitated sulphur.
Zinc oxid ..... āā gr. lxxv
Spirit of lavender 3v
Distilled water ..... 3xiv.
Sig.: Shake well and apply with a camel's hair pencil, carefully avoiding getting any into the eyes.

A mixed ointment of sulphur and ichthyol is considered good:

℞ Precipitated sulphur ..... gr. v
Ichthyol ..... gr. v
Zinc oxid 3ii
Petrolatum ..... 3xix.
Sig.: Apply at night.

Cream of Tartar in Carbuncle has proved of great value as a dressing, according to A. Miranda and P. Lupo. Miranda[8] lately employed cream of tartar in a very grave case of carbuncle in a diabetic subject, 50 years old. On the back of the neck immediately below

(7) La Clinique, July 29, 1910.
(8) N. Y. Med. Jour., May 28, 1910.

the hairy scalp, there was a large carbuncle surrounded by a hyperemic and infiltrated zone which rendered the least movement of the head impossible. There was intense headache, there were night sweats, the tongue was dry and coated, the pulse small and hard, and the temperature above 102° F.

After careful disinfection of the affected region, a crucial incision was made, each cut being about three inches long and extending down to the cervical aponeurosis. The flaps thus formed were lifted from the underlying parts and the cavity was plugged with boiled gauze impregnated with cream of tartar. Under the influence of this dressing the temperature fell almost to the normal point, the tongue became moist, and the patient's general condition was considerably ameliorated. When the dressing was removed, it was found that the lymphangitis had almost entirely disappeared and that the inflammatory edema surrounding the swelling was notably diminished. On the gauze there were noticed numerous bits of necrotic tissue. The cavity was thoroughly irrigated with sterilized water and dressed again as before. This was continued until the fourth day, when a solution of corrosive sublimate or of iodin was substituted for the sterilized water. At the end of 12 days the wound was covered with vigorous granulations. Miranda thinks that the cream of tartar dressing is far preferable to the use of the actual cautery and to the application of such chemical caustics as zinc chlorid, iron perchlorid, etc., which are very painful and give rise to such great losses of substance as often to call for plastic operations, and which lead to scars which are not only unsightly but also crippling. Care must be taken that the bitartrate is brought into intimate contact with the inflamed parts, and he thinks that the powder is preferable to a solution.

The Treatment of Psoriasis. E. G. G. Little [9] divides the dermatosis into (1) ambulatory psoriasis and (2) lectual psoriasis. In ambulatory psoriasis the patient has to continue his treatment during his sleeping-hours, and must remain fairly presentable in order to allow of

(9) Lancet, Mar. 26, 1910.

his continuing his daily work. Local treatment is often difficult in view of the risk of disfiguring exposed parts of the body, as in women who wear evening dress. Still, with the exercise of a little ingenuity and care, local measures, even including ointments which discolor the skin, may be used. Among local applications the author speaks in the highest form of the efficacy of chrysarobin, which in spite of all its drawbacks he never willingly withholds. After referring to the use of a solution of chrysarobin in gutta percha, a preparation known as traumaticin, which he considers the least efficacious though the most agreeable method of using this drug, he gives the following formula for an ointment:

℞ Levigated kaolin 3ii
Pulverized starch.
Wool fat ..... āā 3iv
Liquid petrolatum 3ii
Chrysarobin ..... gr. xv to xxx.

Apply this ointment to the face and forehead where the hair joins the skin, a very frequent position for obstinate patches of the disease. It should be used at night and removed in the morning either with petrolatum or benzin. He has employed a formula suggested by Brocq with good results:

℞ Purified oil of cade 3xii
Extract of soap bark ..... m 75
Glycerite of starch 3xii
Oil of cloves ..... m 30.

The extract of soap bark is made by taking 100 parts of powdered soap bark moistened with alcohol (40 per cent.) and packed in a percolator. More alcohol is poured on till it drips from the bottom. Percolation is then stopped, the mixture allowed to stand for 24 hours and then repercolated. The first four-fifths is collected and put aside. More diluted alcohol is then passed through until the drug is exhausted. Evaporate this weak percolate to a soft extract, dissolve this latter in the reserved four-fifths and make up to 100 with diluted alcohol. The ointment is made as follows: The extract of soap bark is added to the oil of cade and shaken; the emulsion then resulting is added, a little at a time, to

the glycerite of starch in a mortar and rubbed until thoroughly mixed. Lastly, oil of cloves is added.[1]

Hilton's Method in X-Ray Ulcers. Agnes T. Savill[3] reports a case which demonstrates how certain *x*-ray ulcers may be cured by Hilton's method. The patient was a married woman, aged 30 years, who suffered from intense pain in two ulcers situated on the left shoulder and upper arm. The ulcers had appeared after prolonged treatment by *x*-rays for scleroderma, and the pain was so severe that she did not sleep for over an hour at a time for nearly two years. The *x*-ray treatment had been administered almost daily for a period of two years, from 1903 to 1905. The left shoulder was exposed to the rays for five minutes, the lower part of the arm for another five minutes. During the treatment of the arm she was in the habit of sitting with the elbow flexed, the hand resting on the shoulder, with the thumb tucked in under the first finger. The breast and the thigh were also exposed for about five minutes each. Thus the daily treatment lasted altogether about twenty minutes. Sometimes there was a reaction, following which she was given a week or two of rest until it had subsided. The reaction consisted of redness and mild soreness, and it occurred only on the upper left arm and shoulder, never on the breast or thigh. In 1905 a very severe reaction occurred, which extended down as far as the elbow, and the left side of the face and the first and second fingers of the left hand were also affected. She decided not to have any more treatment.

When the inflammation had subsided she noticed two small "pimples," one on the left shoulder, and one about two or three inches lower on the upper arm. These "pimples" remained troublesome for two years (1905 to 1907 the scaly tops began to come off frequently, grow undressed, and were very tender. They had a hard scaly top, and later became red and swollen. About 1907 the scaly tops began to come off frequently, grow again, and again fall off. Then the tops failed to reform, and open sores were left beneath. The two ulcers slowly

(1) N. Y. Med. Jour., Mar. 7, 1910.
(3) Lancet, Dec. 18, 1909.

increased in size and became intensely painful. After trying cocain and other analgesic applications a week without any effect it was decided to divide the nerves just before they entered the ulcerated areas. Accordingly a semicircular incision, about one inch deep, was made above each of the ulcers. Another slightly shorter semicircular incision of the same depth was made across the center of each ulcer. Free bleeding was encouraged, and the gaping wounds were stuffed with aseptic gauze and a fomentation applied. The gauze was left *in situ* until the granulation tissue, swelling up from the bottom of the wounds, pushed out the gauze before it. The gauze, therefore, was not removed until Nature herself rejected it, and the wounds healed up slowly with abundant granulation tissue. The natural healthy discharge was not washed off with antiseptic lotions; instead a non-irritant boric acid ointment with a yellow paraffin basis was applied.

The operation had an immediate result for the better on the patient's condition. Although chloral hydrate was administered for another week the patient stated that on the evening after the operation the pain had entirely altered in character, and she so rapidly improved that at the end of the week she was able to have a good night's rest without the administration of any hypnotic. During her residence in the hospital injections of fibrolysin were given to bring about absorption of the extremely hard sclerodermatous condition of the arm. When the patient was discharged from the hospital after three weeks' residence the ulcers had almost healed up and were completely free from pain. Since that time (March) she attended more or less regularly, at fortnightly intervals, the out-patient department of the hospital. Although the operation had cured the pain and the ulcers had at once started to close, complete healing did not take place for several months; a tiny nodule remained in the center which refused to cover over completely with healthy skin. Many different lotions and ointments were tried, but the only application which did not set up discomfort was boric ointment made up with yellow petrolatum. The injections of fibrolysin which were begun during the stay

in the hospital were repeated at each visit to the out-patient department with the object of softening the thick sclerodermatous parts. The result of the injections was satisfactory; all the thickened parts became softer and thinner. By November, 1909, the ulcers were completely healed.

Treatment of Warts. The wart, according to Graham Little,[4] is most frequent in children, and appears to follow a mild local irritation. Of internal medicines arsenic is the best; Epsom salt may also be tried. For local use the following are suggested: One part of corrosive sublimate, with 25 parts of flexible collodion painted on the wart once a day.

℞ Potassium bichromate ..... gr. iij
Petrolatum ..... 3j.
M. et. sig.: Rub into the wart at night.

℞ Chloral hydrate ..... 1 part
Salicylic acid ..... 4 parts
Acetic acid ..... 1 part
Ether ..... 5 parts
Collodion ..... 15 parts.
M. Sig.: Paint on wart once a day.

℞ Extract of cannabis indica ..... 1 part
Salicylic acid ..... 2 parts
Collodion ..... 40 parts.
M. Sig.: Paint on wart once a day.

When these fail, curetting is probably the simplest and most efficacious of other methods of removal. The wart and surrounding skin are thoroughly scrubbed, and frozen with ethyl chlorid; the wart is then removed with a sharp curette and dressed with a dry antiseptic dressing.

Pruritus Universalis. Pautrier[5] advises the following treatment of general pruritus:

℞ Hydrocyanic acid 3i
Menthol ..... gr. xv
Zinc oxid 3v
Cold cream ..... 3iiss.
M. et fiat unguentum.
Sig.: For external use.

Inunctions may be made with a salve of the following composition:

(4) Practitioner, November, 1909.
(5) Jour. de Méd. de Paris, Oct. 30, 1909.

℞ Chloral hydrate ..... gr. xv
Camphorated oil ..... ʒiiss
Wool fat ..... ʒiii.
M. et fiat unguentum.
Sig.: For external use.

Treatment of Lupus Erythematosus. M. Morris[8] remarks that each case of this disease requires to be dealt with in accordance with its individual peculiarities. The guiding principle is that internal remedies should be used where the disease is associated with vasomotor disturbance in the extremities, and where there is evidence of auto-intoxication by poisonous substances circulating in the blood. External applications are to be relied upon only when no signs of systemic disturbance exist. The treatment is therefore constitutional or local; often both may be required. Any disorder of metabolism or disease of the kidney or liver, must be dealt with by appropriate measures. The bowels should be carefully regulated by means of saline aperients in the morning, together with occasional small doses of calomel. Antisepsis of the mouth and teeth is very important. Anything that is apt to give rise to flushing of the face is contra-indicated; for this reason alcohol should be absolutely forbidden; curry and other heating condiments should be forbidden. Coffee, tea and tobacco should be avoided. Conditions indicative of lowered vitality should be treated on general medical and hygienic principles. The diet must be carefully regulated so as to minimize the risk of disordering the digestion or loading the intestine with materials that may form a favorable soil for infection.

Salol in doses of 10 grains three times a day may be given after each meal; salicin and bismuth in tablet or in pill are often useful. They may be combined with quinin, but this drug should not be given in cases where there is a tendency to chilblains. Morris has not observed any particular benefit from arsenic, which is recommended by some, or digitalis, which is also recommended. Belladonna is of use in middle-aged or elderly people. Ergotin is not serviceable.

Where there is any abnormality of circulation Morris gives ichthyol internally. It not only regulates the cir-

(8) Lancet, Sept. 25, 1909.

culation, but acts as an intestinal disinfectant and prevents the formation of gas. He begins with 2½ grains after each meal, increasing it up to 10 or 15 grains; the administration of the drug should be stopped or diminished if it causes eructation. In certain cases at the period of the menopause, when ichthyol has failed he has given small doses of opium, beginning with 1/30th of a grain in pill three times a day and gradually increasing up to one-fourth of a grain. Opium given in this way is useful in regulating the circulation when there is a tendency to chilblains. Adrenalin may be of use for the same purpose. In some very acute cases of lupus erythematosus good results occur from the use for short periods of a diet exclusively of meats washed down with copious draughts of hot water. This cleanses the intestinal tract by preventing the formation of gas which is produced by farinaceous substances, and promotes the elimination of waste products by flushing the kidneys. In acute cases the meat and hot water may be continued for ten days at a time.

Active interference by local treatment in the early stages often does harm. Careful study of the idiosyncrasies of the patient and the peculiarities of the disease is especially necessary. In the hyperemic stage, cooling lotions (calamine, subacetate of lead, etc.) should be applied. No ointments should be used as a rule. Hebra's soap (sapo mollis virid. 3ii., sp. vini 3i) rubbed in with flannel or lint is useful for the removal of scales and the protection of the surface. Ichthyol in the form of a lotion has almost a specific action on the circulation, and is the most useful of local remedies. Among other topical applications which may be found beneficial in individual cases are resorcin (10 per cent. in collodion); salicylic acid (3 to 6 per cent. in collodion); and pyrogallic acid applied in the form of a plaster. These applications should be used when the disease is very chronic. Resorcin in particular is apt to cause blistering if used in strength; it should therefore never be applied to inflammatory patches. In chronic cases the constant application of a strong solution of ichthyol gives the best results. Iodin liniment is also useful, especially when

combined with quinin internally. Compression by collodion is useful. In the case of small patches, linear scarification or light touches of the thermocautery often give good results. A dressing of iodoform or a salicylic acid plaster mull should be applied afterwards. In one case, that of a woman aged 60 years who had a circumscribed patch on the bridge of the nose for four or five years Morris excised the diseased part. A good scar was left and there was no recurrence. In chronic cases he has used the Finsen light with success. In acute cases the light treatment does harm, and its effects should always be carefully watched. These agents, which are apt to be injurious in the early stages, are particularly useful in the later stages, when there is thickening of the integument. Lassueur of Lausanne gives details of 17 cases which he has treated with the *x*-rays. In only 6 was a cure effected. In 2 there was no result. In the rest there was more or less improvement, but in most of these relapse occurred.

RADIOTHERAPY AND ACTINOTHERAPY.

Aside from the increasing evidence of the untoward effects of both *x*-rays and radium, little of dermatologic or genito-urinary interest has transpired during the year.

Radium Injections. S. Wickham and W. Degrais [1] state that in lupus vulgaris of the neck a curative change is produced by injections of either (1) water rendered radio-active (radio-activated water) in the proportion of 1 mgr. of pure radium sulphate to a liter of water, or (2) water impregnated with radium (radiferous water) in the proportion of 1 mgr. of pure radium bromid to a liter. In their case 40 injections of each kind of one to two cc., were given in the course of two months. Another case of lupus of the fixed erythematous type was treated by injections of radium from November 2 to 14, 1906. For purposes of comparison in this case they treated the lesions of lupus on the left side by the radium apparatus, and the lesions on the right side by injections, the results being as follows: On the left side there was a sharp reaction, with destruction of the lupus and a subsequent process of repair. On Jan. 16, 1906, the cicatrix had a very good appearance and seemed to be strong, but on June 22, 1907, there was recurrence of the disease at the margin of the tissues of repair. On the right cheek, the side on which injections had been given, there was no visible inflammatory reaction, but there was first a diminution and then a disappearance of the erythema of the lupus, the part assuming a whitish cicatricial aspect. On June 22, 1907, the condition of recovery on the right side was maintained and there has been no reappearance of lupus since that time. In these cases the doses of radium were extremely small, but they contained the emanation, an element which is not present in the rays emitted by the radium apparatus. This emanation

(1) Lancet, May 21, 1910.

is endued with an energy which possesses bactericidal properties, as they showed in 1907 in their researches on the action of solutions of radium on cultures of the gonococcus and staphylococcus.

The injection of certain insoluble salts of radium suspended in an emulsion into structures of small absorbent power prolongs the contact of the salt with the diseased tissues and intensifies the action of the radiations of the emanation. In June, 1909, when a larger cancerous nodule of the breast was to be treated, they endeavored to put this idea into execution as follows: On their request M. Jaboin, the chemist of the Radium Laboratory, made an emulsion of radium in a mixture of paraffin and petrolatum. Their object was to inject this preparation beneath the nodule so as to form a stratum underlying the whole of the diseased part. When this was done they applied the radium apparatus above the nodule so that the latter had the paraffin on its underside and the radium apparatus above, being thereby exposed to a cross fire to which they attach importance. The nodule diminished in size and disappeared rapidly; there was no ulceration and there has been no recurrence.

Finsen Light in Variola. C. H. Wurtzen[4] calls attention to needed precautions in Finsen's treatment of variola. The arrangements ought not to be limited to the sick-room, but account should be taken also of the adjoining rooms, passages, etc., so that no great quantity of injurious daylight shall be thrown on the patient in opening the door of the sick-room. All sources of artificial light must be covered with red lamp glasses, such as photographers use, and when doctors and nurses in their rounds think it necessary to use ordinary light, it ought to come only from a stearin candle, of which the flame contains so few chemical rays that no harm is done if used only for a short time. It therefore follows as a matter of course that even for a short time, and in order to see the exanthem better, daylight ought not to be admitted. Of the question as to how the red light affects the patients, he says that nothing is known of its remote effects, but the reaction to it seems

(4) Brit. Med. Jour., Aug. 6, 1910.

to be somewhat variable. Some do not seem to be appreciably influenced, while others find it rather unpleasant in the long run, and some get an absolute aversion to it. It often produces a feeling of heaviness and headache, and it is always found exhausting and tiring for reading; on the other hand, he has not noticed any mental excitement or increased sensuality, as is said to have been the case elsewhere.

Naturally, the red light produces a strong sensitiveness in the retina to ordinary daylight. This excessive sensitiveness is very troublesome to the nurses, who of course, are obliged to go backward and forward between the red-room and the day-light. To mitigate these drawbacks—and in a red-room the light on bright days is very intense—colored spectacles may be used with advantage. Green and blue glasses, each in their own way, considerably modify the light and produce different shades, of which some will prefer one, other's another; and with smoked glasses a chiaroscuro is obtained, which gives great relief. Contrary to what might be expected, neither the blue, the green, nor the smoked glass, provided they are not very dark, cause any considerable weakening of the light in a red room.

X-Ray Dermatitis is divided by M. K. Kassabian,[5] into acute or accidental dermatitis of the patient, and the chronic dermatitis of the operator. The former, he said, occurred but rarely now because of improved apparatus and technic, although some few patients possess an idiosyncrasy in that direction. The chronic or operators' dermatitis is contracted but rarely nowadays, although when the ray first came into use 90 per cent. of its users were affected with dermatitis sooner or later. Only the most thorough protection against exposure to the ray insured safety. The dermatitis usually came on slowly, and there followed in rapid succession redness, dryness, itching, ulceration and pain, the severity of the symptoms varying in the individual cases. In the acute dermatitis the most effectual treatment was hot normal salt solution, which was soothing and healing. In the treatment of a chronic dermatitis

(5) Jour. Amer. Med. Assoc., Oct. 23, 1909; p. 1426.

the essential points were to avoid exposure to the ray, to avoid injury, anoint the affected parts with lanolin, touch up fissures with an organic silver solution, keep the hands warm, wear gloves, avoid soap, and immerse frequently in hot water. A posterior digital splint might be applied to promote healing of fissures, but absolute rest is a most essential factor in the treatment. Warty growths must be excised and a skin graft done.

GONORRHEA AND CHANCROID.

Gonorrhea in Females.

Gonorrhea in Venetian Little Girls. According to F. Minassian [6] gonorrhea from coitus is quite common in the little girls of Venice. He reports the case of a 4-year-old boy infected by an 8-year-old girl in an attempt at coitus. The girl, her father, mother and sisters suffered at the same time from gonococcic infection. During five years in Venice, Minassian had under care 200 little girls with gonorrhea, one of whom was but six months old. These children frequently suffer from Bartholinitis, proctitis, peritonitis, conjunctivitis, arthritis and, rarely, cystitis. The greatest danger is to children coming in contact with infected servants. Five per cent. are due to attempted violation by vaginal or anal methods. Want of hygienic care and masturbation also play an important rôle.

Gonorrheal Arthritis in a Three Weeks Old Girl, is reported by G. F. Lydston.[8] Through ignorance of the mother's condition the infant's eyes had been permitted to become infected at birth. Subsequent investigation showed that the mother had gonorrhea. Within forty-eight hours after birth the child developed gonorrheal conjunctivitis, which proved to be of moderate severity. On the fourteenth day the left wrist became greatly swollen, painful and slightly reddened. Three days later the right knee became involved in extensive swelling of a character similar to that of the swelling of the wrist. The immunity of infants from ordinary rheumatic arthritis, taken in connection with the typical physical characteristics of the involved joints, and the moderate temperature, ranging from 100° to 101° F. and the clear history of gonorrheal infection established

(6) Revista Venetia di Scienze Med., January, 1910.
(8) Jour. Am. Med. Assoc., Aug. 6, 1910.

the diagnosis. Antigonococcic serum was administered hypodermically beginning with three minims every other day and gradually increasing until fifteen minims were given. The reaction was slight and the improvement prompt. At present, about four weeks since beginning the serum treatment, the joints are almost normal. There is some impairment of motion of the knee. Ankylosis will not result. The wrist requires no further attention. The local treatment consisted in constant application of the following anodyne ointment:

		gm.	or c. c.
℞	Ol. gaultheriæ	8	ʒii
	Ext. aconitis rad.,		
	Ext. belladonnæ rad.	āā	3 or gr. v
	Mentholis,		6 gr. x
	Adipis lanæ hydrosi	qs. ad. 30	ʒi.

Sig. Apply on sheet lint and surround by cotton and oiled silk.

Urethral and Bladder Gonorrhea in Women. Urethritis in women according to A. H. Goelet,[9] almost always due to gonorrhea, may be acute, subacute or chronic. The acute form is rare; the subacute and chronic forms are often not recognized. The cervix uteri is the most frequent seat of primary infection. It often occurs and exists without urethal infection. The chief reasons that urethritis is so often overlooked in women are, first, the types that prevail most frequently, *viz.*, the subacute and chronic, cause little or no discomfort to the patient, and the increased secretion that may occur is disregarded or regarded as leucorrhea, which to many women, is viewed in the light of a necessary inconvenience; and secondly, the discharge from the urethra is often not perceptible to the examiner unless he looks for it. In its normal state the urethra is dry and free from secretion; therefore any secretion from the urethra should be regarded with suspicion.

In examining every gynecologic patient the urethra should be stroked from within outward along its course with the finger in the vagina so as to express any secretion that may be confined within the urethral glands. All secretion thus found should be examined microscopically. Goelet uses a small, thin applicator such as is

(9) Am. Med., July, 1910.

used for making applications to the ear. A small bit of absorbent cotton is twisted tightly around the end which is inserted into the urethra after the external orifice has been cleansed of secretion. If necessary a bivalve urethral speculum is used for spreading the meatus. This speculum also affords a view of the urethal surface. Failure to find gonococci in the discharge does not necessarily imply absence of infection. Frequently stimulation of the glands by an application of the galvanic current of 5 milliampères for two minutes by means of a conical electrode such as is employed for dilating the cervical canal of the uterus, will often reveal gonocócci.

For many years Goelet used iodin in aqueous solution for these conditions and found it the most satisfactory application for overcoming inflammations due to gonorrheal infection. The irrigations are made with a blunt-pointed nozzle such as is used for the male, and the reservoir is elevated only about two to three feet above the couch upon which the patient is reclining, so as to avoid forcing the solution into the bladder. This precaution is taken only when there is no complicating cystitis. The patient is made to void urine before being placed upon the table. Because of its convenience the tincture of iodin is used for preparing the solution, the strength of which may vary from half a dram to a dram of the tincture to a quart of hot water. In the subacute stage the weaker solution is used, and in the chronic stage the stronger solution, every day until the gonococci disappear from the secretion. Then the irrigations are given every second day until the discharge ceases. The method of irrigation is repeatedly to fill and distend the urethra with the solution and then to withdraw the nozzle and permit it to be expelled. Massage of the urethra from within outward by the finger in the vagina is advisable before irrigation, to empty urethral glands.

In obstinate cases iodin dissolved in glycerin (one dram of the tincture to four ounces), is so injected into the urethra by an ordinary piston syringe, as thoroughly to distend the canal. Urethral gland involvement is best overcome by massage and stimulating applications

of negative electrolysis through a metallic electrode passed through the canal into the bladder. The strength of the current should not exceed 5 m. continued for two minutes, and the applications should precede the irrigation. This application stimulates a degree of evacuation of the glands not accomplished by massage alone.

It is advisable in these cases to administer internally some agent that will act as an urinary antiseptic and for this purpose Goelet gives internally hexamethylenamin in doses of seven grains three to four times a day, half an hour to an hour before meals and at bed-time. The usual dietary restrictions are endorsed. Iodin is a most reliable antiseptic, whose penetrating power surpasses that of any other. It stimulates and is astringent, but does not irritate. In the strength used it does not coagulate albumen, as do silver nitrate and mercury bichlorid. Hence it does not coagulate the capsule of the germ but destroys the germ by penetration. When stronger solutions are employed a burning sensation may be complained of until the next urination, but prolonged irritation has never been observed. It is seldom necessary to employ any other agent in urethritis.

Silver nitrate next to iodin is the most valuable remedy. Goelet occasionally uses it in obstinate cases. Sternberg reports test made of iodin upon gonococci, showing that they were destroyed instantaneously by a solution of 1 to 4,000. The solution of one dram of the tincture to the quart is approximately 1 to 3,400.

Cystitis of gonorrheal origin yields promptly to irrigation with iodin solution. The strength needed varies with the acuteness of the inflammatory action, from 15 to 30 minims to a dram to the quart of warm water. In the acute stage Goelet uses daily irrigation with warm boric acid solution to which an ounce or two of camphor water is added; and he also gives hexamethylenamin internally in doses of 5 to 7 grains every two hours together with a mild saline to empty the intestinal tract.

As soon as acute symptoms subside daily irrigation with the milder solution of iodin is begun. The strength of the solution is increased as tolerance is established. The patient is first made to empty the bladder before

being placed upon the table, then the urethra is further cleansed by irrigation with the iodin solution, and the solution is projected into the bladder by elevating the reservoir sufficiently to overcome the sphincter action of the neck of the bladder. Tolerance of the patient is a fair guide to the amount of solution needed; not more than three to six ounces will be necessary. Distension of the bladder is unnecessary and inadvisable. If the patient cannot expel the solution in the recumbent position a catheter is inserted, the solution is withdrawn and a similar quantity is injected through the catheter which is then withdrawn and the solution allowed to remain until the next urination. In the beginning when the bladder is very sensitive this will be as soon as the patient gets on her feet. The action is so prompt that longer retention is not essential.

When involvement of the vagina or cervix uteri exists a tampon partially saturated with glycerine and iodin (one dram of iodin to four ounces of glycerine) is placed against the cervix and retained for 12 to 24 hours. Of course any other treatment of the cervix or vagina that is required is instituted before this tampon is inserted and usually before irrigation of the bladder is made.

Internal administration of a urinary antiseptic is even more essential in cystitis than in urethritis. Nothing is so good as hexamethylenamin given in doses of seven grains three to four times a day half an hour before meals and at bed-time. Given with some mild saline to promote free evacuation of the bowels and to counteract the evil effects of intestinal toxemia, it is an ideal remedy in these conditions. The customary dietary restrictions are, of course, enforced.

Gonococcic Serum in Gonorrheal Salpingitis. H. B. Orton [2] has treated a woman with gonococcic serum, who became infected just prior to menstruation. Two c.c. were injected at each treatment. Three injections were made in conjunction with warm iodin douches. After the second injection the temperature dropped. None of the injections produced discomfort.

(2) Jour. Am. Med. Assoc., June 25, 1910.

GONORRHEA IN MALES.

Rectal Gonorrhea. According to A. J. Zobel,[3] gonorrhea of the rectum almost always results from sodomistic practices; and hence it is usually of the primary type. The cases reported were in American born boys of 16, 18 and 20 years of age respectively. They belonged to the tramp class and were of rather a low order of intelligence. They were ignorant of their true condition and came to the clinic with a self-made diagnosis of "piles." When made aware of the true nature of their trouble it had a markedly depressing effect upon them, which, in one case, after a few weeks developed into a condition resembling the neurasthenia which often accompanies a chronic posterior urethritis. The symptoms complained of, briefly summarized, were: All complained of such soreness about the anus and rectum that they did not care to stand; walking was an effort and caused much pain. At the time of bowel movement they suffered excruciating pain leading to an enforced constipation. Two were annoyed by discharges from the anus, while one was unaware of its presence, although it was found on examination. In one, the discharges were streaked with blood, and bleeding was noticed at the time of defecation. One complained of an itching sensation about an inch up from the anal aperture, and had severe pain on the drawing in of the anal sphincters. Their appearance was feverish, worried and haggard, and they felt weak, ill, and distressed. It was impossible to make a digital or instrumental examination at the first visit, on account of the acute pain caused thereby. Therefore, whenever there is the least suspicion of the possibility of a gonococcic inflammation of the anus and rectum, the case should be treated as if it actually exists, and the ultimate diagnosis left to the future. When the acute symptoms have subsided under treatment, there can be seen excoriations and fissures about the anal orifice and in the canal, with marked redness and infiltration of the mucous membrane of the anus and rectum, together with the presence of a puru-

(3) Am. Jour. Urol., January, 1910.

lent secretion. Examination of this secretion shows the presence of the gonococcus.

Adenopathy From Gonorrhea. J. H. Hurst [4] reports a case of axillary glandular swelling apparently connected with an eruption of pimples on the face and upper neck, the pus from which showed mixed infection of staphylococci and gonococci. The infection could be traced to barber-shop exposure. The swelling in the axilla later developed into an abcess with abundant gonococcic pus.

Gonorrheal Central Corneal Ulcer. Adam [6] states that so-called central corneal ulcer is generally not an ulcer at all, but a necrotic process resulting from thrombosis of the nutrient vessels. He reaches this conclusion from histologic study of a case of ophthalmo-blennorrhea in an adult. Naturally the underlying gonorrhea has to be vigorously combated by the usual means. If a central ulcer develops there is no special indication. True gonorrheal ulcers of the maceration type may also sometimes occur centrally, although as a rule they are marginal. They are due to purulent stagnation and should be treated with chemical caustics or the electric-loop cautery. In general the treatment of corneal ulcer is first preventive, and the preventive technic has been carried to unusual lengths, such as packing the upper conjunctival sac with ointments by the aid of a glass rod. If ulcers form of either kind or in any portion of the cornea, the principles of treatment are those applicable to corneal ulcer in general.

Neisser Bacterin in Chronic Gonorrhea. G. B. Lake [8] reports a case in which he has used Neisser's bacterin. The first three injections were of 15,000,000 killed bacteria each; the second three of 25,000,000 each and the last three of 40,000,000, 60,000,000 and 75,000,000 respectively. All injections were made in the right and left thighs alternately, at intervals of one week for the first six, and of ten days for the last three. One week after the last injection of vaccine the microscopic ex-

(4) Jour. Am. Med. Assoc., April 30, 1910.
(6) Muench. med. Wochenschr., July 19, 1910.
(8) Jour. Am. Med. Assoc., Feb. 19, 1910.

amination showed very few cocci. General and local treatment was then resumed and while the clinical picture remained constant, the microscopic findings varied greatly from time to time. Two or three specimens were reported as having so few gonococci that they were hardly to be found, and then followed one showing cells which contained from 50 to 100 bacteria each, these phagocytes occurring in groups, and containing practically all the gonococci in the specimen.

Thomas [9] points out that an essential in immunization, whether by vaccine or serum, is progression in dose, beginning with minimal doses but steadily increasing until tolerance is established. Small doses at long intervals, produce anaphylaxis and hypersusceptibility. Intolerance to serum or vaccine may be produced if the inoculations are not merely too frequent but too large. In this connection the question arises as to whether the practitioner should resort to a determination of the opsonic index in the employment of vaccine. This index can be accurately arrived at only by those who are so familiar with the technic and so constant in its employment as to be specialists along this line. An attempt on the part of the practitioner, unskilled in the use of opsonins, will either give no results whatever, or results which are misleading. Employment of vaccines by the general practitioner is therefore haphazard or controlled chiefly by improvement in the patient. Autogenous vaccines should be employed rather than stock vaccines.

Passive Hyperemia in Male Gonorrhea. A. Miles [1] describes an apparatus used in the Bier treatment of acute gonorrheal urethritis. It consists of a glass cylinder about seven inches long and two inches in diameter, closed at one end, and with a small lateral tube near the blind end. Over the open end is fitted a conical rubber flange with a thick rubber ring, like an umbrella ring, let into its narrow free edge. This thickening of the margin of the flange is of importance in rendering the apparatus air-tight. The bell is exhausted through the lateral tube by means of a metal pump attached to a

(9) Therap. Gaz., Apr. 15, 1910.
(1) Edinburgh Med. Jour., June, 1910.

short piece of stout rubber tubing, over which an ordinary clamp is slipped to occlude the tube after the air has been withdrawn. After the patient has passed water, the flange is applied around the penis as far back as possible, care being taken to retract the hair so that it is not included in the constricting ring. An elastic band is then applied over the flange to ensure close apposition with the skin. The bell is now passed over the penis, the wide (forward) end of the flange slipped over it, and the air is withdrawn by the aspirating syringe, and the tube clamped. Three or four strokes of the piston usually produce a sufficient vacuum. The penis at once becomes turgid, swollen and bluish in color, comparable to that of the organ in a priapism after a spinal injury. If there be even a moderately profuse discharge, some drops of pus exude from the meatus. The proper amount of suction causes no pain or discomfort; if pain is produced the vacuum is excessive, and some air should be allowed to enter by slightly relaxing the clamp. In from ten to fifteen minutes the clamp is removed, and air allowed to enter the bell, and after an interval of five minutes it is again exhausted. This is repeated two or three times, the whole seance lasting about an hour. The bell is applied once daily. From an experience of over 300 cases of acute gonorrhea of the anterior urethra treated by this method, he concludes that it is more cleanly than that by injections, and that the patient can more easily be instructed to carry it out safely and efficiently for himself. The method is available in phymosis, where edema of the prepuce precludes injections.

Operation in Gonorrheal Epididymitis. The vast majority of epididymis inflammations due to gonorrheal extension from the urethra through the vasa deferentia result in more or less complete resolution under expectant treatment. Not infrequently resolution is incomplete and fibrous tissue is left at the epididymis head which compresses its tubules, blocks the passage and prevents exit of the spermatozoa. Sterility of the testicle on that side results, and in double epididymitis complete sterility occurs. While pain is usually controlled by hot applications and rest in bed, cases are quite com-

mon where pain is so severe that despite sedatives it becomes unendurable. The temperature rises to 103° F. or higher. While after great suffering, inflamation subsides, the function of the testicle is permanently destroyed. Here H. H. Morton,[2] advises the following modification of Hager's operation. The patient is prepared for a major operation and anesthetized. Incision is made through the scrotal skin, exposing the tunica vaginalis which is opened at the junction of epididymis and testicle. The contained fluid is evacuated and the epididymis examined. The testicle and epididymis delivered through the wounds are enveloped in warm towels. Multiple punctures are made with a tenotome in the fibrous covering of the epididymis over the portions where enlargements and thickening are greatest. The knife should penetrate the thickened fibrous capsule and enter the infiltrated connective tissue. Decided lessening of resistance is felt after the thickened covering of the epididymis is penetrated. If pus escape, the opening should be enlarged and a small probe inserted in the direction from which pus flows. Insertion of a probe is attended with less danger of injury to the epididymis tube than if a knife is used. After the abcess has been explored with the probe, the pus should be evacuated by light pressure over the surface and the cavity washed out with a solution of 1 to 1,000 mercury bichlorid solution in a fine pointed syringe, followed by normal salt solution. The tunica vaginalis incision should be lightly closed with a running catgut suture. A cigaret-drain of gauze should then be applied over the incision and the skin brought together by a subcutaneous suture. Gauze dressing should be applied and the parts supported by a wide T-bandage. The second day after the operation, the gauze drain should be removed and the wound redressed. As a rule the patient may be allowed to walk about a week after the operation. In several cases operated upon, the testicle and sack were found to be firmly bound to the scrotum by newly formed adhesions. Invariably the tunica vaginalis was filled with enough fluid to cause marked distension.

(2) Long Island Med. Jour., March, 1910.

Chancroid.

Extragenital Chancroid. Chancroid [3] on the upper portion of the body is a very rare lesion. Since the time when Ricord stated that there was no soft chancre located above the diaphragm, M. Gaucher has seen one of this sort in the service of Danlos, which was localized upon the index finger. An inoculation was made which produced a positive effect and, in addition, the characteristic Ducrey-Unna bacillus was found. This fact is important, for the extra-genital chancroid has the appearance of any suppurative process and nothing attracts attention to the special nature of this ulceration which, from its very inception, may produce similar lesions on the patient or upon other individuals. From this point of view, its localization upon the finger is particularly dangerous. In the present case the inoculation was from a chancroid on the penis. A similar case of auto-inoculation has been observed by S. C. Martin.

Treatment of Chancroid. The prognosis of chancroid is generally made with hestitation.[4] In Roman days it often led to suicide as a relief from certain death. In more modern times, medical men did not make such a bad prognosis, even when phagedena attacked the tissues after the appearance of a chancroid. Drastic measures were employed, but comparatively fair results were obtained. The routine practice of treating chancroid consisted of applying to it fuming nitric acid, and subsequently dressing the burn with a soothing ointment. This method was so generally employed that it was considered proper to make the same cauterizing application to every chancre. This method continued for a long time, so much so, that we see it practiced at this late day. The pus of a chancroid was looked upon as impossible of being or even becoming laudable, in other words it was always execrable.

The treatment is self-suggestive. An efficient bactericidal agent will destroy the cause of the trouble and recovery will easily take place. It is, unfortunately, a fact that the most innocent appearing chancroid will

(3) Am. Jour. Derm., December, 1909.
(4) Am. Jour. Derm., August, 1910.

show tendencies to phagedena, which is simply a mixed strepococcic and staphylococcic infection. Radical measures must necessarily be adopted to stop this process, and very good vulneraries must be employed in order to bring about *restitutio ad integrum*. This possibility is mentioned to call attention to the fact that, while simple chancroid is easily handled and its treatment is followed by good results, it is not unusual for severe untoward symptoms to show themselves. Some lose their heads when a phagedenic chancroid of the penis goes up the urethra and eats its way right on until it attacks the mucous membrane of the bladder, ultimately resulting in death. Such cases are not common; but such a one may occur at any time.

Hot Air Treatment of Phagedenic Chancroid. E. W. Ruggles[5] reports two cases of phagedenic chancroid treated with success by the modified Bier system. That the effect of artificial hyperemia upon bacteria is not merely inhibitory but, through raising the local opsonic index, bactericidal also, has been thoroughly established by Bier and other investigators. Hot air treatment will prove of the greatest value in all phagedenic processes of whatever nature or origin. That far the greatest part of the results in the first case was brought about by the direct bactericidal effect of the heat and not by hyperemia is manifest when the rapidity of cure is contrasted with the duration of treatment in the last two cases of mixed infection, the germs of which are not destroyed by such a low temperature.

(5) N. Y. Med. Jour., Jan. 22, 1910.

SYPHILIS AND ALLIED DISEASES.

Prominent in the literature are researches in Wassermann's serum and on arsenic in syphilis. Most are pursued in with a special pleading tendency rather than in the analytic spirit which controls results by the alternative hypothesis. The usual errors are evident in the absolute claims made for the diagnostic powers of the serum in face of the facts that the reaction occurs in scarlatina, in pellagra, in Hodgkin's disease, in leprosy, and in a number of other states, and does not always occur in syphilis. Of the influence of medication upon it very contradictory reports are rendered. The most accurately made and analyzed tend to show that iodin, arsenic and mercury affect it. Copper has not been tested in this particular although it probably, like the other alternatives, would exert an influence.

The controversy over Ehrlich's internationally patented synthetic dioxydiamidoarsenobenzol or "606" ranges chiefly around its untoward effects. The usual early ascription of such untoward effects to improper preparations or improper selection of cases which marks the second phase in the introduction of any new remedy is apparent in the literature of the subject. The more quackish position that because a remedy causes untoward effects in some patients it can do no good to others is also taken.—ED.

THE WASSERMANN REACTION.

A New Method. An easy method for Wassermann's serum has been described by R. Weiss,[6] requiring very little skill and time, and in his hands having proved to be as reliable as Wassermann's reaction itself. The method is based on Wassermann's test which consists in combining the serum (amboceptor) with organ extract (anti-

(6) Pacific Med. Jour., August, 1910.

gen) and complement-holding serum, and by allowing the mixture to stand for a little while. To recognize whether the complement has been bound or not, blood corpuscles are afterwards added and the necessary immune bodies. Usually sheep's blood and the serum of a rabbit treated with sheep's blood, are used. If the complement has been used up under the influence of the combination of syphilitic serum and organ extract no hemolysis will take place. If, however, the complement is still free, it will attach itself to the sensitized blood corpuscles and will dissolve them. For the modified method it is therefore necessary to have the following materials for the test:

Physiologic salt solution, prepared by dissolving one salt tablet in 12 c.c. of water.

Antigen, (alcoholic organ extract).

Complement, (guinea-pig serum, dried upon filter-paper).

Amboceptor, (hemolytic immune serum prepared against human red corpuscles).

Patient's serum.

Emulsion of human red cells, (obtained by collecting 10 or 12 drops of blood from the patient, transferring it to the defibrinator and shaking vigorously until filaments of fibrin are seen attached to the beads.

To hold to this material and to perform the test, Weiss constructed a small case with a shell having two rows of bore-holes and a drawer underneath. The front row has eight small bore-holes holding eight small test-tubes (capacity about 5 c.c.,) pointed at the end, and provided with india rubber stopper. The first six are numbered, 1 to 6. The seventh is provided with the name "control"; the eighth with the name "complement-papers". The second row consists of 6 somewhat wider bore-holes to accommodate larger test-tubes. The first two of these large tubes are graduated in 2 c.c. up to 12 and are used for preparing the saline solution. The third holds the compressed tablets (50) for making the solution. The fourth and fifth are ordinary test-tubes and the sixth is a special tube, provided with beads, for defibrinating the blood. The drawer contains the antigen and ambo-

ceptor in ampullæ (6 of each), and also the graduated pipettes, the blood pipettes, a special knife for cutting the ampullæ and a rubber teat. The lid of the box holds a plate on which the necessary notes can be written down.

With this case the test is performed as follows: Open the bottle containing antigen and draw the fluid up into the dark amber glass pipette to the graduation. Eject this into tube No. 1. Add 2 c.c. of salt solution to the antigen in tube No. 1. Place 2 c.c. of salt solution in tube No. 2 (This tube from the "Control"). Place two complements in each test tube. These must be completely immersed in fluid. Take up the defibrinated blood in the light brown pipette to the graduation-mark. Transfer this to tube No. 1. Put an equivalent amount of defibrinated blood in No. 2. Let the two tubes remain in at the temperature of the room for an hour. Shake from time to time.

By means of the ungraduated pipette transfer the contents of one amboceptor bulb to tube No. 1 and a similar quantity of amboceptor to tube No. 2. Shake well. Ten to 15 minutes later again shake. In a short time the control-tube (No. 2) will show solution of the blood corpuscles and the liquid will become red.

In tube No. 1, if the reaction is negative, the appearance will be identical with those in the control tube (either at the same time or a little later). If the reaction is positive, tube No. 2 will show a sedimentation of the red corpuscles, but no solution, and in about 30 minutes the blood corpuscles will have settled to the bottom of the tube without the blood cells being dissolved and the supernatant liquid will be clean and light. A certain amount of solution of the red corpuscles may take place in tube No. 1 if it is allowed to stand for some hours.

Value of the Wassermann Reaction. R. G. Matson[7] has analyzed 2667 reactions. He cites a large number of individual cases, a few of which are here noted. A marine hospital surgeon developed an ulcer on the finger, which he thought resulted from neglecting a slight abrasion, but it refused to heal. He gave a positive reaction and later developed secondaries, Six

(7) Northwest Med., April, 1910.

cases were referred from laryngologists with ulcers on the glottis. Four gave positive Wassermann reactions and benefited by treatment; two were negative, one being tuberculous and the other malignant. A woman operated upon for hemorrhoids with no relief gave a positive Wassermann test. Examination revealed ulcers in rectum which disappeared under mercurial treatment.

A young man with afternoon fever, progressive loss of weight and strength, had with typical signs of advanced pulmonary tuberculosis, raised 60 to 80 c.c. of sputum in 24 hours which showed no tubercle bacilli. He gave a positive Wassermann reaction. Wonderful improvement followed antisyphilitic treatment. This suggests that the work of Barton L. Wright be checked up with the Wassermann reaction to determine how many of his cases were also syphilitic. In 80 cases of primary syphilis, positive reactions were present in 70. One became positive on the appearance of secondary symptoms. In 102 cases of secondary syphilis, 88 positive reactions were obtained. The negative cases were under treatment. In 61 cases of tertiary syphilis 41 positive reactions were obtained. In 2 negative cases syphilis had existed for 20 years. All were said to have been well treated. In 44 cases of latent syphilis, positive reactions were obtained in 30. In 26 cases of visceral syphilis 23 reactions were positive.

Of 591 insane patients, 20 per cent. gave positive reactions while in only 5 per cent. a luetic history could be obtained. The reaction was positive in 9 paretic dements and negative in 4. Of 83 cases of dementia precox 10 per cent. gave a positive reaction. Of 174 cases of paranoia 14 per cent. gave positive reactions. Of 57 cases of secondary confusional insanity, 19 per cent. gave positive reactions. Of diseases other than insanity, presumably in non-syphilitic individuals, the positive reaction was found in only 3 out of 748 cases examined.

C. S. Ensor[8] in testing 262 insane male patients in Mount Hope hospital obtained a positive reaction in 22 per cent. Of the 262 patients only 14 per cent, show-

(8) N. Y. Med. Jour., July 10, 1910.

ing a partial reaction gave a history of syphilis. Of 27 paretic dements, 96 per cent. gave a positive reaction. The reaction in 5 cases of brain syphilis were positive in 4, negative in 1. The last patient had been under mercurial treatment for 6 months. In the use of Wassermann's serum as modified by Hecht, A. Fleming and F. J. Clemenger [9] obtained the following results from cases showing active lesions of syphilis:

	Positive	Negative	Doubtful
Primary	13	1	0
Secondary	50	0	0
Tertiary	101	2	7
Congenital	38	0	0
Syphilitic history without lesions	38	19	2
General paralysis	31	1	3
Tabes	6	3	2
Supposed non-syphilitics	22	745	4

The hospital cases gave a positive reaction despite the length of time since infection. Where treatment had been faithfully followed for several years different results were obtained. In one case a physician contracted syphilis insontium professionally. Mercury by the mouth was taken for 4 years. Treatment then ceased for two years. His blood was then tested and gave a positive reaction. Treatment was recommended, although there were no apparent lesions, and mercury given intramuscularly without result on the reaction. This was followed by mercury internally, pushed to the point of saturation when treatment was suspended. Two weeks thereafter, a negative reaction resulted. For the succeeding 6 months the reaction remained negative. In another case a positive reaction was obtained after the patient had been treated for 14 months. Treatment was continued but no tests were made for 3 months. After this interval the negative reaction was obtained and persisted.

The Wassermann Reaction in Infants. P. Mulzer and W. Michaelis [1] find infants with manifest syphilis react in the same proportion as syphilitics in the secondary stage, 96 per cent. being positive. The positive reaction appears first with the onset of manifest syphilitic symptoms. In children over one year old the same proportion

(9) Med. Rec., July 30, 1910.
(1) Berlin. klin. Wochenschr., July 25, 1910.

holds as in infants. Children with latent syphilis behave as regards the positive sero-reaction the same as adults with latent syphilis. The change of the Wassermann reaction by specific treatment appears to be more difficult to attain in children than in adults. The great majority, 83 per cent. of the mothers of syphilitic children react positively. When syphilitic parents have several children the later children, or the last without symptoms, as a rule, give a negative reaction.

The Wassermann Reaction in Human Milk. Olaf Thompson,[2] who studied the Wasserman reaction in milk finds the milk of syphilitic women very often gives a positive Wassermann reaction. This reaction, which is usually strong, occurs not infrequently in women in whose blood-serum a positive reaction cannot be obtained. The reaction appears, apparently, with unchanged strength during the first two or three days of lactation; then, if the mother nurses, it suddenly diminishes and usually has disappeared within five to six days after the birth of the child. If the mother does not nurse, the reaction remains positive and unchanged in intensity for at least from 8 to 14 days, after which time it is usually impossible to obtain specimens for examination. During the last days of pregnancy the reaction is similar to that of the first days of the puerperium. The milk of non-syphilitic women may also, though rarely, give a positive reaction during the first days of the puerperium, but this reaction is far weaker than in syphilitic women. What value a positive Wassermann reaction in the milk may have in diagnosis and prognosis is not proved by the present investigation. Positive reaction, however, occurred when using less than 0. 1c.c. of serum, only in the presence of syphilis.

The Wassermann Reaction in the Various Stages of Syphilis. J. E. R. McDonough[3] says that a positive reaction can be obtained in only 40 per cent. of primary cases, and that no reliance should be placed upon a negative Wassermann reaction in the primary stage. In the secondary stage a positive result occurs in 85 per

(2) Berlin. klin. Wochenschr., Nov. 15, 1909.
(3) Lancet, Apr. 2, 1910.

cent. of cases, whether eruption be present, or even when no manifestation of the lesion exists, and when the patient is undergoing treatment. When there is a rash and the patient has had no mercury, 97 per cent. of the cases are positive. When no sign is present 80 per cent. are positive. Such cases should receive treatment at once. The other 20 per cent. may be negative: 1, Because the virus has disappeared or is dormant and there is no specific antibody in the serum; 2, because the patient is taking mercury; 3, because the patient forms one of the 3 per cent. who in any case give a negative reaction. In the tertiary stage 70 per cent. give a positive result. The following suggestions are made: 1, When a man infects his wife both should be rigorously treated and the woman should be re-treated during each pregnancy. 2. (a) A syphilitic woman should be treated during the whole nine months of her pregnancy; (b) an apparently healthy woman whose blood gives a positive reaction should be so treated during each pregnancy. 3. (a) A syphilitic child should be suckled only by its mother, never by a wet-nurse; (b) an apparently healthy child, either of whose parents has had syphilis, should be suckled only by its mother; (c) should such an apparently healthy child react positively to Wassermann's test, it should receive antisyphilitic treatment.

A positive reaction can be obtained in a congenital syphilitic on the day of birth. A congenital syphilitic is peculiar in that mercury has but little influence in converting a positive into a negative reaction. In candidates for life insurance, a positive reaction should disqualify the risk even though years may have elapsed since the original infection, for a positive result indicates some visceral lesion which will ultimately shorten life. On the other hand, a candidate may be accepted who, having completed a two years' course of treatment shows a negative reaction on being tested at intervals of three, six, and nine months after such a course.

The Effect of Iodin Upon the Wassermann Reaction. W. Stümpke [4] concludes that potassium iodid or iodin is able to produce a complete inhibition in a hemolytic

(4) Muench. med. Wochenschr., July 19, 1910.

system; that this effect is associated with a certain concentration of the medicament; that within certain limits even sublimate hemolysis is hindered by the addition of potassium iodid; that a positive Wassermann reaction may be obtained in rabbit-serum after the incorporation of large doses of iodin; that such an influence in human serum has not been established; and that this last result is analogous to the statement of Brauer that the content of mercury in the human organism exerts no direct influence on the outcome of the Wassermann reaction.

The Effect of Mercury Upon the Wassermann Reaction. L. Brauer[5] analyzing the introduction of mercury and the Wassermann reaction finds that a positive reaction may be associated with a great excretion of mercury, and a negative reaction may occur when such excretion of mercury is slight and absent. A previously negative reaction may become positive in spite of the presence of moderate or large quantities of mercury in the blood. A reaction which has become negative-under the influence of the treatment may become positive again in spite of the mercury remaining. The mercury in the serum of a patient undergoing treatment for syphilis is unable to destroy or paralyze the complement-fixing substance in the serum of an untreated syphilitic. The influence of the mercurial treatment upon the outcome of the sero-diagnosis differs in fresh and old syphilis.

E. Donath[6] found that 85 per cent. of cases of aortic insufficiency mesaortitis or aneurism gave a positive reaction. There was a positive reaction in 3 cases of articular rheumatism, gummatous syphilitic synovitis and ostitis, and muscular rheumatism, whose aortic affections had previously been regarded as the consequence of infection or articular rheumatism. In 4 other cases abuse of tobacco and in 2 cases abuse of alcohol suggested the toxic form of mesaortitis until the sero-diagnosis gave the clue. In patients suspected of syphilis giving a negative reaction the negative may be transferred into a positive response by a tentative brief course of mercury. He calls this the "provocatory mercurial treat-

(5) Muench. med. Wochenschr., April 26, 1910.
(6) Berlin. klin. Wochenschr., Mar. 1, 1909.

ment." After inunction of 12 grams of gray ointment during the week the Wassermann reaction becomes positive.

The Wassermann Reaction in Diseases Other Than Syphilis. *The Wassermann Reaction in Pellagra.* Howard Fox[7] finds that while a positive Wassermann reaction occurs in pellagra, it is generally weak and distinguishable from the decided reactions of syphilis and leprosy.

The Wassermann Reaction in Leprosy. Howard Fox[8] has employed the Wassermann reaction in 60 cases of leprosy. He finds that a positive Wasserman reaction is frequently obtained in cases of leprosy, giving no history or symptoms whatever of syphilis. The reaction is at times very strong, inhibition of hemolysis being complete. The reaction occurs chiefly in the tubercular and mixed forms of the disease, especially in advanced and active cases. In the maculo-anesthetic and purely trophic type the reaction is generally negative.

The Wassermann Reaction in Hodgkin's Disease. A. Caan[9] reports 4 cases of Hodgkin's disease without previous history of syphilis which gave Wassermann reactions by the Landsteiner modification of the Wassermann reaction and the V. Dungren and Hirshfield modification of the Noguchi method. This suggests two possibilities as to Hodgkin's disease. On one hand, it may be a late manifestation of hereditary or acquired syphilis; on the other hand, since the complement-fixation reaction is not absolutely specific for syphilis, but is present in relapsing fever and sleeping-sickness, caused by organisms closely related to the Treponema, possibly the Wassermann reaction in Hodgkin's disease indicates that this affection is produced by organisms closely related to the treponema or trypanasomes.

Symptomatology of Syphilis.

A New Sign of Lues is reported by W. E. Deeks,[1] in Canal-Zone patients who had histories and stigmata

(7) N. Y. Med. Jour., Dec. 18, 1909.
(8) Am. Jour. Med. Sciences, May, 1910.
(9) Med. Rec., June 18, 1910.
(1) Med. Rec., Sept. 24, 1910.

leaving no doubt as to diagnosis. The faces of all had a muddy expression. On close examination a dirty brown or yellowish pigmentation, irregular in outline, blotchy in character, resembling the pigmentation of chloasma is apparent, particularly on the forehead and temples and also on the cheeks. It does not correspond to the areas of solar tanning where the hat protects. In the Canal Zone it is so characteristic that one can pick out syphilitics in any gathering. It develops as early as the sixth month after the initial lesion, and, when the disease is untreated, becomes more marked with age. It is particularly valuable in diagnosis in women when no opportunity exists for an examination of the husband without exciting suspicion. This pigmentation and the corona veneris differ essentially.

Syphilis Insontium is discussed by W. B. Brouner[2] who reports the following cases: A 31-year-old spinster, when examined, had a diffuse, well distributed roseola. There was a general adenopathy but with no demonstrable body lesion, nor was there history of a cut or abrasion on any part of the body. It was not until the mouth was examined that the original site of infection was discovered. The glands of the neck were large and painful, the tonsils markedly infiltrated. When everted, her upper lip was found covered with mucous patches and a copious serous discharge bathed the sore to such an extent as to suggest incipient salivation, although no mercurial had been taken.

A 20-year-old lady's maid, of attractive appearance, was employed to look after a lady and three children. She had a full-blown body roseola, with a number of mucous patches on the lips. She denied coitus, but admitted accepting without limit the amorous kisses of a male friend who had a cracked slit or sore in the left corner of his mouth.

A 36-year-old married man had a slowly healing "fever sore" on his upper lip. He denied promiscuous affiliation, nor had he kissed or been kissed outside of his family circle. His was a typical case of syphilis. Careful questioning revealed the only possible source of in-

(2) N. Y. Med. Jour., Aug. 13, 1910.

fection to be a drinking-cup in the railroad station in and about which he was employed.

An estimable young girl worked side by side in an office with a bookkeeper who had syphilis. She had a full-blown chancre on her lip, occasioned by accidentally sticking into her lip a sharp-pointed lead pencil which the bookkeeper beside her had used.

A 21-year-old wife had a well-developed roseola with the usual glandular enlargement. A small piece of court plaster of about the size of a three-cent piece was over the proximal phalanx of her right index finger. The patient stated that it covered a little sore which was very slowly healing. The sticking plaster really covered a hard, small, typical, almost-healed-over chancre, acquired from an actress, a former schoolmate, who was visiting with her, through a cut on her index finger from the broken edge of a tumbler in which her theatrical friend kept her toothbrush.

Acquired Syphilis in a Congenital Syphilitic is reported by O. L. Suggett[4] in a 20-year-old man with unmistakable evidence of congenital syphilis: saber-blade tibiæ, enlargement of the humeral epiphyses, scaphoid scapulæ, serrated teeth, etc. He came under care with a large mixed sore in the sulcus back of the glans. Chancroidal features predominated. The patient passed from observation, but two months later appeared with a polymorphic eruption, papules predominating. There was slight fever and considerable headache. The acquired disease was precocious and very virulent. Suggett had known the patient for years, and he had not been cachectic, rather the contrary. Suggett doubts whether the case falls within the category of Profeta's law.

Syphilis Relapse After Seemingly Long Immunity. After an immunity, remarks W. Coates,[5] practically a cure for many years, a man who has had syphilis, undergone the soundest treatment, married, and begotten healthy children, may develop symptoms. Is this man to be branded during all these years as uncured? Is he to be deprived of all the blessings of family life? The

(4) N. Y. Med. Jour., Apr. 16, 1910.
(5) Brit. Med. Jour., May 2, 1910.

longer, as a rule, that marriage is delayed the better, the virus becoming more attenuated, perhaps; but it seems as unreasonable to forbid a man who has had rheumatic fever or diphtheria to marry, as to forbid one who has been properly treated for syphilis, and in whom, after a reasonable lapse of time, no symptoms have appeared. The following cases will illustrate this:

On March 1, 1886, Coates was called to a man aged 50 who was suffering excruciating pain on the inside of his left knee. He had felt pain for several days, but it had developed acutely during the night. He had never had rheumatism. The knee felt hot, and there was slight effusion into the joint. The temperature was 103° F., the pulse rapid. He was treated for several days with salicylates, until it was learned that he had been treated twenty years previously for primary and secondary syphilis. It was remarkable how the severe pain was almost instantly relieved by a few doses of potassium iodid and mercury; he resumed his work in a week, continued treatment for many months, and remained well. He had been married seventeen years; he had four children whose ages ranged from 7 to 16, and in not one of them nor in his wife could Coates detect any sign of syphilis.

A man aged 45 consulted Coates about a painful swelling of the right foot, of three months' duration. The foot was swollen, red, and edematous, and a large ill-defined gummatous mass occupied its dorsum. He admitted having had syphilis eighteen years before. Under large doses of potassium iodid and mercury and evaporating lotions the whole mass disappeared. This gentleman had been married sixteen years; he had two daughters, aged 12 and 14; in neither daughters nor wife could Coates detect a sign of syphilis.

Chancre Absence with Constitutional Syphilis. Early spontaneous healing of a slight chancre gives rise to frequent cases where the initial lesion has seemingly never been present. This is, as Johnathan Hutchinson [6] points out very common in women, for the reason that the indurated sore is often free from inflammation and causes

(6) Am. Jour. Derm., August, 1910.

no subjective symptoms. On the male genitals a quite hard chancre, which would be easily recognized by a physician, may escape the notice of a non-observant patient, although present for some weeks. There are cases much more difficult of explanation than these. The phenomena which characterize a chancre are probably to be met with only on cutaneous or mucous surfaces. If the parasite gains access to deeper parts, it is possible that it may also gain access to the blood without producing any local changes. Some such hypothesis is necessary to explain the occurrence of syphilis after pricks with needles, etc., which were not followed by irritation. Several such are on record. A nurse with symptoms of secondary syphilis, showed a minute brown spot at the base of one thumb which had followed a deep prick from a needle. There had never been any inflammation or hardness, but the glands in the armpit were enlarged.

A physician of middle age, who had never had syphilis, attended a woman in her confinement who on her vulva had numerous condylomata. The perineum being torn, he was under the necessity of stitching and he pricked his hand. The prick was a quite definite one and drew blood, and knowing that the woman had syphilis, he was from the first anxious about himself. As there was no abrasion, it was decided to be useless to attempt any cauterization. No local changes whatever were observed. The accident occurred Dec. 16; about the middle of February some spots were noticed for the first time on the trunk. On March 7 there was a tolerably plentiful papulo-scaly eruption on the chest, abdomen and fronts of arms, about the nature of which there could be no doubt. The site of the prick in the hand could not be identified. There was no swelling in the axilla. Hutchinson could find no trace of a chancre elsewhere.

Malignant Precocious Syphilis, is reported by H. C. B. Ebstein,[7] in a 31-year-old man who ten years previously had a chancre followed by secondaries. The treatment with protoiodid of mercury acting slowly, he was advised to visit the Springs, Arkansas, where he

(7) N. Y. Med. Jour., Dec. 18, 1909.

underwent the inunction treatment and the administration of iodids until physiologic effects became apparent.

Upon his return from this resort, he was troubled with cephalalgia, a progressive anemia, and pains over his entire osseous system. Five years ago a sequestrum was removed from his nose, and a year later the palatal process of the superior maxilla. Three years ago there developed an osteomyelitis of the lower third of the left humerus which necessitated its resection; the wound healed *per primam.* Two years ago a gumma presented itself at the vertex of the skull which ulcerated down to the meninges, followed by another anterior to the first. In the last year he has had necrosis of the right malar bone, the left spine of the scapula, and over the great trochanter of the left femur. In spite of inunctions, vaporization, hypodermoclysis, intramuscular administrations of hydrargyum and iodids, the conditions have progressed.

Precocious Syphilitic Jaundice is reported by A. Busche [8] in a case where the chancre and exanthem improved under mercury salicylate. After the sixth injection the patient began to suffer from slight catarrhal symptoms of the intestine with some swelling of the liver. The very favorable course, the absence of general, particularly cerebral, symptoms, and the absence of diminution in the size of the liver marked the affection clinically as a simple, perhaps somewhat intense, icterus syphiliticus precox. After two weeks leucin and tyrosin were found in the urine. They are usually met with in syphilis, only in yellow atrophy of the liver. This raised the question whether, instead of a benign icterus, the case was not one of parenchymatous inflammation of the liver that would result in yellow atrophy, and whether the syphilis was the cause of the affection. The latter question was not answered. The liver symptoms disappeared about the middle of the mercurial treatment, the patient left the hospital and returned to work against advice while traces of the exanthem and of the primary sore were still present. The icterus had completely disappeared, and the urine was normal.

(8) Berlin. klin. Wochenschr., Feb. 7, 1910.

The Treponema Pallida, according to R. P. Campbell [9] can be obtained from the serum of the tonsil in from 80 to 90 per cent. of patients suffering from untreated secondary syphilis, from the period of general glandular enlargement until the end of active secondary signs, or until the effect of treatment has been manifested.

F. B. Gurd [1] advises the following method of determining the treponema pallida, procuring material for staining by any method. The superficial necrotic layer, if it is an ulcerating surface, or the superficial epithelium, if the lesion is covered by epidermis, is scraped off and the serum which exudes is removed by means of a curette or scalpel. The fluid thus obtained is placed on a slide and an equal quantity of ink added. The ordinary commercial India inks may be used, Günther's being particularly good, although the results with Higgins' waterproof ink are good enough. The serum and the ink are then rapidly and thoroughly mixed and smeared over the slide so that a pale brown color results. The material dries in a minute or slightly more and is immediately ready for examination on placing the oil for immersion directly on the ink smear. The picture produced will show the red blood cells as large, clear, circular areas in a brownish black field, the bacteria and debris present appearing as white rods and dots, and spirochetæ, if present, as clear white spirals. Hecht described the appearance as being similar to that produced by dropping pieces of glass rods into a mixture of melted dark colored sugar in a petri dish and holding it up to the light when cold.

Relapsing Chancres are discussed by W. Coates,[2] who points out that existence of an indurated sore in a person who has had syphilis is not in itself alone evidence of a second attack; and this discloses a very interesting clinical phenomenon. Chancres not infrequently relapse, thus indicating, though not always, that treatment is not carried out. These occurrences are always in the site of the original sore. A small gumma in the corona, and an ulceration over a local lymphatic inflammation

(9) Jour. Am. Med. Assoc., May 14, 1910.
(1) Jour. Am. Med. Assoc., May 28, 1910.
(2) Brit. Med. Jour., May 7, 1910.

on the penis, may also resemble a primary sore. But, strange to say, a primary sore may also recur whilst a patient is actually under treatment. A man aged 34 came on Feb. 3, 1909, with a hard sore on the right side of the prepuce just above the corona, and well-marked secondary symptoms. He was treated with intramuscular injections of 1 grain of calomel, and afterwards with an intramuscular injection of 1 grain of metallic mercury (Lambkin's cream) fortnightly. He was free from symptoms in four months, but treatment was continued. In December he called attention to the seat of the primary sore, which had returned, was as large as a threepenny piece, indurated, and eroded. He denied fresh exposure. Mercury atoxylate (1 grain) was substituted for the mercury as an injection, and small doses of potassium iodid were given by the mouth. In six weeks the induration had disappeared, and has not returned.

Oral Syphilis and Cancer were discussed from the standpoint of their interevolution by Letulle.[4] C. J. Broecann [5] discussing such interrelations of oral syphilis, remarks that the primary lesion, when located on the lip or tongue, begins and runs a course quite similar to the genital chancre. For one to become inoculated with the syphilitic virus it is necessary that there be an abrasion of the skin or mucous membrance, either macroscopic or microscopic.

The inoculation is either due to direct or indirect contact with an infectious syphilitic lesion, as hard chancre or mucous patch. Direct infection may result from kissing or from being bitten by one suffering from infective lesions in the mouth. The indirect ways of being infected are various, and are the result of some intermediate object, as the public drinking-cup, eating-utensils, spoons, glasses and knives, cigarette and cigar-holders, penholders, pencils, tooth-brushes, physician's or dentist's instrument, etc. The primary lesion may develop on an ordinary fever-sore of the lip or tongue or on a burn of the mouth from any cause. At other times it starts at a crack or fissure on the lip or tongue. When

(4) Practical Medicine Series, Vol. IX, 1908.
(5) Am. Jour. Derm., August, 1910.

the lesion is on the lip it is almost always found on the dorsal surface of the anterior half of the organ, on the border or tip. The glands usually involved are the suprahyoid, submental and the lymph-nodes of the submaxillary glands.

The primary lesion of the tonsil is not, as a rule, recognized until quite late, when the appearance of the secondary symptoms makes the diagnosis possible. The tonsil is enlarged, at times bulging out between the pillars of the fauces, with more or less swelling of the nearby tissues, combined with symptoms of a mild tonsillitis, as pain on swallowing, feeling of malaise, slight fever, etc. The lymph-glands of the parotid and the lateral cervical glands are affected, and the patient appears to be suffering from a case of unilateral mumps. In some cases the swelling of the parotid and adjoining glands causes pain, which radiates toward the ear and down the neck. Although inguinal adenitis is not painful, the adenitis of an extra-genital chancre is liable to be so, as the infection is almost always a mixed one.

The secondary symptoms that may appear in the mouth are the syphilitic sore-throat and the mucous patch. The former is an erythema of the arch, soft palate, tonsils and pharynx, with an edema at times simulating an ordinary sore-throat. The mucous patch is the most common and the most important secondary lesion that occurs in the mouth. Although this is usually a secondary symptom, it may be met with in the tertiary stage or even in congenital syphilis. This lesion is of the utmost importance to every dentist, because first, its secretion is very contagious; second, it is often painless, and therefore unobserved; and lastly, so insignificant at times that both the dentist and the physician are apt to overlook it, handle it carelessly and either by their fingers or instruments spread the disease. The mucous patches may be found in both sexes, more often in men than in women, this being due to the prevalence of smoking and chewing in the former. They are as a rule multiple and are found on the tongue, inside of lips and cheeks, less often on the palate, tonsil and gums. The appearance of the patches varies somewhat with the

location and the proximity of the teeth, as any irritation is prone to have an effect on their appearance.

Mucous patches of the tongue develop on the border or dorsal surface in most cases, but may be found on the tip or under surface. A typical patch on the dorsum of the tongue is round or oval, of a grayish white appearance and in many cases slightly raised above the level of the surrounding tissue. It is sharply defined, although the border may be irregular, and the adjacent surface is characterized by an absence of redness, inflammation and swelling. If the white layer of secretion which covers the patch is removed a bright red circumscribed area results. In an atypical patch instead of a round smooth lesion, the surface may be covered with cracks and fissures. It varies in size; in the early stage it is often no larger than a split pea, while in the later stage it may be as large as a five-cent piece. In some cases it extends and coalesces till almost the entire surface of the tongue is covered. If the patch is not disturbed by the teeth, or by the food passing over it, as on the under surface of the tongue, a warty or cauliflower-like growth may result. On the tip or the border of the tongue the patch is at times much altered, being ulcerated, deeply grooved or hollowed out from the pressure or rubbing of irregular teeth. Often associated with the mucous patch is a fissuring of the angles of the mouth and a persistent cracking of the lips. This apparently harmless condition of the mouth, which often resembles old fever-sores, if persisting over weeks, is usually syphilitic in origin.

The most important tertiary symptom of the mouth is the gumma, although there is a superficial and deep sclerosing glossitis which is an inflammation of the tongue and is rather rare. The gumma is not rare, and is more common in men than in women. It may affect the tongue, the hard or soft palate, pharynx, lips or tonsils. There are two forms of gumma, the superficial and the deep. The former is usually multiple. On the tongue, gummata occur as a rule, on its dorsal surface, appearing as firm, non-movable nodules, about the size of a pea, projecting into the mucosa and the submucous

tissue, and are not always well defined. They are painless, indolent and sometimes not noticed till they become irritated and break open, discharging a yellowish pus, leaving an irregular syphilitic ulcer.

The deep gumma is generally single, and usually causes a considerable destruction of tissue, as a perforation of the palate. On the tongue, as a rule, it is situated on the dorsal surface near the middle line. It may be quite small or may attain the size of a walnut. When deep it causes very little bulging and can be felt as a round oval tumor, like a foreign body in the substance of the muscle of the tongue. It is indolent, painless and not very tender to the touch. The mucous membrane over it becomes red and thin just before the gumma is ready to break, and if it is large in size, fluctuation may be detected at this stage. The gumma may remain unulcerated for several months, gradually growing nearer the surface, breaking and leaving a formidable, ragged, somewhat indurated ulcer covered with a yellowish slough. It varies much in shape, being irregular or cleft-like, but rarely round and smooth as the gummata observed in other parts of the body. Gradually the slough and irregular edges disappear leaving an uneven granulating surface. The induration of this ulcer and surrounding tissue becomes absorbed, a scar resulting which may cause considerable deformity of the tongue.

Leukoplakia, or smoker's patch, is a chronic superficial inflammation of the tongue and is at times a tertiary symptom of syphilis. Many cases are no doubt due to syphilis, but they occur in those who never have had the disease. The typical smoker's patch begins as a smooth, sharply-defined, oval, bright-red patch, which in time becomes covered with a yellowish-white material in the form of a thin crust. In other cases there is a bluish-white or pearly patch from the start, without surrounding redness or sign of inflammation. Early the lesion is single, but as years go on, new patches may develop near the original patch, the individual patches becoming thicker and the pearly layer raised above the surface of the surrounding mucosa. Thus the disease progresses, till at times the entire dorsum of the tongue is covered

by these patches. The disease is a very chronic one, found between the ages of 20 and 60 years, and its duration is years. It causes very few if any subjective symptoms, unless it spreads quite extensively, when a dryness and a slight burning are complained of on eating and drinking. Leucoplakia is believed by some to be a precancerous growth.

The chancre is more likely to occur in a young adult, the carcinoma in those over 40 years of age. The former has a rapid course, becoming indurated and hard almost from the start, with glandular enlargement within two weeks, followed shortly by the secondary syphilitic eruption and accompanying constitutional symptoms. These symptoms are wanting if the condition is carcinomatous.

The differential diagnosis between gumma and carcinoma is much more difficult, as the resemblances between the two are many and striking. Both affections occur more often in men than women, as a rule late in life, the progress is slow and the glandular involvement is not early. They differ in the following points: The gumma may be multiple, signs of syphilis may be observed in other parts of the body, or a clear history of having had the disease may be obtained. Gummatous ulceration of the tongue is usually present in the central part, cancerous ulceration chiefly on the border. The former is usually not so deep, nor so indurated, its edges are undermined, while those of the cancer are hard, nodular and raised. The lymphatics are involved sooner or later in the cancer, while in tertiary syphilis this scarcely ever happens.

Syphilitic Rashes in Infants. In diagnosis, F. H. Barendt [6] remarks that the age of the patient is important, for it is well known that congenital syphilis most frequently manifests itself between three weeks and three months of age, rarely later. Therefore, if the history of the patient definitely sets forth the absence of any eruption occurring after birth and during the early months of life, we are justified in excluding syphilis as a cause of the skin affection.

The site and distribution of syphilides in the infant

(6) Liverpool Medico-Chir. Jour., July, 1910.

are frequently the same as of non-syphilitic affections. This feature adds materially to the difficulty of diagnosis. Eczema of the nates, perineum, and genitalia is readily detected. Serpiginous ulceration on the palate, syphilide. This may be overlooked unless careful examination is made. Special attention should be given the cervical region, the forearms and palms, the mid-thigh creases, the ham-spaces and the soles. The favorite sites of syphilis are readily enough observed by the mother, but discrete efflorescences evoluting or involuting, may escape her notice. The hepatic area should be carefully examined, and in male children the testicles, although enlargement is uncommon. One case where such enlargement was present, had not been noticed by the mother.

Syphilides on the face alone are not so frequent as on the buttocks, but are readily recognizable when uncomplicated by secondary infection of pus organisms. They assume the appearance of fissures—rhagades—in the mental sulcus and at the angles of the mouth; the rosa of the lips instead of being glabrous and moist, so typical of a healthy infant, is scabrous, dry, and the epidermis is flaky. The commissures of the eyelids are more rarely involved, and although snuffles attract attention, as often as not neither the alæ nasi nor the introitus shows any abnormal change. If crusts composed of tissue detritus, and not of inspissated mucus be seen within the nares, and leave an excoriated bleeding surface, syphilis is present. In bottle-fed children, especially where a "comforter" is used, the circum-oral region is often the site of diffuse moist dermatitis. The occipito-nuchal and mento-cervical regions are at times the site of confluent syphilides, with discrete remains of epidermis. The eruptive appearance depends on the intensity of the inflammatory processes and presents various types of efflorescence in different regions. Polymorphy is not so well marked as in the adult, but sufficiently present to be characteristic. The infant's skin is more responsive to noxæ than that of the adult, the epidermis is more translucent, and vascularity of the derma should be kept well in mind. The integument exhibits more folds and

creases, flexion being the natural attitude. In addition the skin is unavoidably exposed to prolonged contact with excretions of doubtless a determining influence in the frequency of syphilides in the napkin area.

Moist discous patches with figured margins, often fusing with one another, involving considerable area, are more prevalent in infants than the maculo-papular, squamous eruption of the adult. The thin epidermis is readily raised and speedily shed, consequently the moist, glabrous inset patch—the *plaque muqueuse* of French syphilographers—is by far the most common and striking syphilide in children. On the nates these patches are most frequently observed, and on the soles and flexures recently ruptured blebs may be present. Unruptured blebs with red areolæ are more often seen in the palms, being better protected here than elsewhere. Rhagades situated on the webs of the toes and fingers may escape notice if the digits be not well separated. Onychia in the infant, in absence of trauma, is due to syphilis.

The color of the rash is a dull red, and in marked contrast to the ruddy sheen of a healthy infant. On appressing a glass slide, the redness does not wholly disappear as is the case with erythema; a certain amount of blood stasis is evident, showing that some dermal change more profound than vascular dilatation has occurred. Later on, these moist patches may become the seat of ulceration; circum-anal and circum-oral ulcers with a semipurulent secretion are often seen in those children who have not been early treated. Moist nodules in the ano-genital region can scarcely be mistaken for any other disease than syphilis. The non-moist syphilide, *i. e.* the maculo-papular, is met with in infants chiefly on the back, chest, and extensor aspects of the limbs. Squamous it can scarcely ever be termed; the efflorescences are discrete, fringed with flaky epidermis, and the dull red color is the most prominent characteristic. In the stage of involution the pigmentary disturbance is most evident and through the appressed glass over a fading efflorescence the coppery color is manifest.

In doubtful eruptions the oral cavity should always

be inspected. Sonchez, in 1785 stated "the frenum of the upper lip is the spot in which pustules are the least equivocal sign of the venereal poison." Barendt has not noticed this as a special site, but superficial excoriation of the buccal mucosa and palate is often present which has cleared up an otherwise doubtful diagnosis. A crying baby renders observation easy, and in a good light any alteration in the normal lining membrance can be readily detected. Serpiginous ulceration on the palate, along with the modification of the infant's cry, so difficult to describe and so easy to recognize, at once confirms our suspicions about the nature of the skin rash.

In every case attention should be paid to the general physiognomy of the child, the posture, and the presence of listlessness. In congenital syphilis the infant frequently presents what has been pithily described a miniature picture of senile decrepitude. The anemia and the pigmentary disturbance of the skin call to mind the facial condition of the aged. The pigment is unevenly distributed, and the pale wan face, the lusterless eyes, hollowed cheeks, the mouth, the raucous cry, at once proclaim the nature of the disease and dispell all doubt about the cause of the skin eruption.

Insemination of pus organisms in syphilides in the absence of other constitutional signs of syphilis may mislead, and impetigo contagiosa may be wrongly diagnosed. Treatment will soon rectify the diagnostic error, and the pigmentary disturbance coming to view as the pustulation disappears, will reveal the true nature of the disease.

Lupus Vulgaris Mimicry by a Tertiary Syphilide is reported by T. R. Paganelli.[7] The patient, a man of 30 years, had had gonorrhea at 21 and a penis sore at 29. A few months later he noted a rash all over his body, and was treated for this condition on and off for a period of about five years. During this time he always complained of headaches. He also had typhoid fever and pneumonia. From May to August, 1906, he had a severe pain on the top of his head. In August he noticed a boil about half the size of a walnut forming over his left

(7) N. J. Med. Soc. Jour., December, 1909.

upper eyelid. He consulted a physician who told him it was a cystic tumor and should be removed. About the middle of August, the physician operated, and for about a week the eyelid became very much swollen and painful. About the middle of September the cut was temporarily healed. Soon after this a pimple formed on the left side of his nose, which was sticky and shiny in appearance. The pimple opened later and pus came from it constantly. This he covered up with sticking plaster. In December a pimple appeared on the right side of his nose, and it seemed to communicate with the one on the left. There was a bad odor from these sores and from his nose. He now consulted several physicians without relief, then went to Christ Hospital where he was treated for five weeks.

In January he consulted Paganelli, the eye being completely closed on account of the swelling and accumulation of inflammatory exudate. Ulcerated nodules of a jelly-like consistency were found, one on the cheek, one one the inner canthus of the left eye and two in close proximity at the right nostril. A great number of scars were noticeable on the forehead and cheeks. A beefy redness extended over the nose and cheeks, having a characteristic butterfly shape. In January a piece of bone from the superior maxilla fell out, making a communication with the nose. He was put on increasing doses of potassium iodid and the sores touched with tincture of iodin. The patient was ordered to irrigate the nose with normal saline solution containing a small quantity of potassic permanganate and to apply a yellow oxid of mercury at night. Under this he improved steadily but slowly. February 11, 1909, he went to the New York Eye and Ear Infirmary where it was agreed that it was a case of lupus vulgaris. Dr. Dixon gave him five *x*-ray treatments, and the same medication was continued. The disease became slightly better and then became stationary. Iodids were given in very large doses and hot fomentations of bichlorid of mercury 1 to 1,000 were applied. The patient then made a fairly good recovery.

Syphilitic Leucoderma in a Male is reported by K. H. Jones,[8] in a 21-year-old stoker who at 18 contracted syphilis. He had had very slight secondaries and had treated irregularly. He was a decided blonde. The whole of the trunk, to about the level of the umbilicus, as well as the upper extremities as far down as the insertions of the deltoid muscles, was affected. The skin was somewhat pigmented, especially in certain regions, while over the whole there appeared whitish, rounded or oval mottlings or dapplings, most obvious where the surrounding cuticle was most deeply colored. Pigmentation was most marked in the region over the outer two-thirds of the clavicles, and more so immediately above than just below them; in the middle line, over the inner thirds of these bones and over the upper edge of the sternum, it paled very markedly. The skin over the outer two-thirds of the clavicles, and for about 1 to 1½ in. above, was a deep brown, like that of a light-colored Indian; that of the rest of the neck was normal. The next darkest parts were those over the top of the shoulders and over the deltoid muscles, pigmentation being very marked as far down as the insertions of the latter. The very dark coloration did not continue round the back of the neck in the form of a collar. In all areas dappling was exceedingly obvious, the whitish patches being well-defined and their edges sharply cut. Over the rest of the trunk, ventrally and dorsally, the condition was well-marked but the pigmentation was less, the color being light yellowish-brown; the dapplings in consequence were less obvious, and showed less tendency to be sharply circumscribed. About the level of the umbilicus was a well-marked impression of a tight belt; below this the peculiar skin coloration was absent. The pale areas or dapplings varied from ½ to ¾ in. in diameter, and tended to become smaller as well as less well-defined on the chest, sides, back, and abdomen than in the clavicular regions and over the deltoids.

After six months, the condition was slightly less evident, but was still most marked just over the clavicles and deltoid muscles; the whitish dapplings showed a

(8) Brit. Med. Jour., Mar. 26, 1910.

tendency to be less circumscribed, and the pigmented areas to decrease, both in extent and depth of coloration. Around the nipples and over the scapulæ the pigmentation had disappeared, together with the characteristic dapplings. Syphilitic pigmentation usually clears away very slowly. In fair Europeans, exposure to the sun, especially accidental exposure of a portion of the skin usually protected, may produce pigmentation as definite and as deep in color as the syphilitic described above. Such pigmentation is frequently, but not always, preceded by an inflammatory erythema; it is very permanent, like the syphilitic, and may take eighteen months to two years to disappear, although there be no subsequent exposure to the sun.

Glans Penis Gumma is reported by H. Goldenberg [9] in a 33-year-old man who had cervical adenitis about 15 years before, for which he had been operated upon. He had gonorrhea at about the same time. He denied lues. In February, 1909, he noticed a hard lump on the inner side of the prepuce. Because of this lesion a phimosis ensued for which he was operated upon in Budapest, and this wound took over two months to heal. Subsequent to this, the patient married. He denied ever having had any rash, sore-throat, or other secondary syphilitic manifestations.

About four or five months ago an ulcerating growth appeared on the glans penis. On examination, a large ulcerating mass was found on the end of the penis; this had destroyed most of the glans, laying bare the urethra. The Wassermann reaction was strongly positive, a test for the treponema negative. After eight injections of mercury salicylate with potassium iodid internally the ulceration had entirely healed. Gummata of the prepuce and glans penis never undergo absorption, even under the most rigorous treatment; they always break down, and in the case of an isolated gumma form a single ulcer or, if there be a diffuse gummatous infiltration, it destroys the greater part of the glans, resulting in such deformities as were present in this case.

(9) N. Y. Med. Jour., Apr. 23, 1910.

Hypospadias with Simultaneous Urethral Chancre and Gonorrhea is reported by H. L. Ziegel [1] in a 37-year-old bachelor. The patient was a neuropath who frequently passed large quantities of pale urine of low specific gravity. He had balanic hypospadias. The abnormal situation of the meatus urinarius did not prevent proper urinary and sexual functions. There was no polyuria or polydipsia. There was no evidence of contracted kidney or arteriosclerosis. The nervousness increased under general treatment. Thirteen months later the patient came under observation for difficulty in starting urination, pain in the anterior urethra during the act and spattering of urine. There was a cylindrical infiltration about the urethra posterior to the meatus. Eighteen days later it was decided that the conditions in the urethra were due to urethral chancre. The patient had a typical macular roseola and well marked adenopathy. The time between the onset of the urethral symptoms and the roseola had been about 5 weeks. The patient before the urethral symptoms, had had two attacks of gonorrhea, one six years previously. In the opinion of Ziegel there was increased vulnerability to urethral attack, because of the situation of the meatus on the under surface.

Amenorrhea and Tertiary Syphilis. Frankenstein and Murowsky [2] report 3 cases. Each woman had severe tertiary syphilis. All sexually mature and active, had pronounced amenorrhea, lasting from 6 to 8 years. Under antiluetic treatment two recovered their menses, while the third developed hemorrhages which pointed to vicarious menstruation. Clearly the association of severe tertiary syphilis and protracted amenorrhea is not an accident. Specific oöphoritis suggests itself as an explanation, but this seems sidetracked by the occurrence of ovulation and menstruation in patients with syphilitic ovaries. It is evident that the spirochete, if it does not attack the ovaries *in situ* may attack the blood, and so establish an anemia with resulting amenorrhea. In such a condition, return of menstruation should coincide

(1) N. Y. Med. Jour., Jan. 22, 1910.
(2) Deutsche med. Wochenschr., Aug. 4, 1910.

with recovery of the normal blood count. Such an association is common enough. The women all suffered from very severe destructive lesions of the skin and periosteum. One developed tabes dorsalis. The ovaries were not palpated in any case and there were no evidences of adnexitis.

Gastric Syphilis, according to H. Pater,[3] occurs more frequently in men than in women, and indulgence in alcoholics leads to it. In surgical cases, it appears in the third stage; in others, the lesion is usually secondary. It may occur in inherited or acquired syphilis. The time between the chancre and the lesion, varies from two to forty years. It may be a diffuse infiltration, gummatous neoplasm, ulceration, cicatrix or stenosis. It may occur at any part of the stomach, and vary in degree and dimensions. It may involve the mucous membrane or all the coats. It is not always a vascular lesion. The symptoms are gastric pain, dyspepsia, crises of vomiting, loss of appetite. There may be simple gastric catarrh, functional disorders, gastralgia, gastro-enteralgia, etc.

Cardiac Syphilis. Heller of Kiel, claims that mesaortitis productiva is always due to syphilis. The old battle between the advocates of specific and non-specific sclerosis which raged so furiously in psychiatry about three decades ago, has long been abandoned so far as the nervous system is concerned, but Heller's claim has revamped it as to the heart and blood vessels. G. G. Sears [4] points out that while lues is the commonest cause, other toxic and infectious agents may produce similar scleroses. According to Sears, every patient with cardiac or coronary diseases in whom no cause can be found should be given the chance which mercury and potassium iodid offer. Heart-block cases due to syphilis are so numerous that the patient, in absence of any definite cause, should be given the benefit of antiluetic treatment, as should also sufferers from aortic regurgitation. Large doses of postassium iodid are not always necessary, but massive doses sometimes succeed where smaller

(3) Gaz. des. Hôp., Jan. 15, 1910.
(4) Boston Med. and Surg. Jour., June 16, 1910.

ones fail. Mercury should be combined with iodin preferably by injection. Rest and suitable individual meditation are also indicated.

Acute Visceral Syphilis is reported by Thomas Bushby [5] in a 28-year-old unmarried laborer who came to the hospital complaining of sore-throat, dysphagia and dyspnea aggravated by exertion. He had been ill three weeks, the initial symptom being chill followed by intense pain in left breast and dyspnea. He had a sore-throat for 18 months previously, but this had become greatly intensified so there was marked painful dysphagia. Up to three years ago he was a healthy man, when he contracted syphilis. A chancre was followed by a diffuse rash. On discharge from three month's treatment in a hospital he abandoned further treatment. He never had rheumatism. He had always been temperate in alcohol. On admission the patient had a slightly cyanotic, puffy face. There was extensive sloughing of the soft palate and posterior pharyngeal wall. There was a large cicatrix, of specific nature, on the right elbow, the result of an ulcer, which had existed four months previously. Around the right hip-joint there were several smaller scars of similar nature, and also around the ankles. The chest was well-formed. The apex beat of the heart was weak but palpable in the fifth interspace just outside the nipple line. A faint systolic thrill was felt in the second right intercostal space close to the sternum. By percussion, an area of dulness of somewhat peculiar shape, was mapped out. On auscultation there was a loud double pericardial friction sound along the left costal margin. The first sound of the heart at the apex was indistinct and accompanied by a soft systolic bruit, which was not conducted to the axilla nor heard in the back. Over the aortic area there was a soft, but distinct systolic bruit. The second sound was barely audible; the existence of a diastolic bruit was doubtful. The liver reached to two finger-breadths below the costal margin, and was slightly tender to pressure. The spleen could be felt below the margins of the ribs. There was distinct dulness in the flanks, which shifted freely on

(5) Liverpool Med.-Chir. Jour., July 10, 1910.

change of position. The whole abdomen was slightly protuberant. The day after admission the right pleura was tapped and sixteen ounces of serous fluid withdrawn.

The patient was placed under mercurial treatment, and made steady improvement as regards general health, but distinct organic cardiac disease remained. The presumption was that syphilis was the *origo mali*. Interference with the return of blood to the right side of the heart caused the facial cyanosis, congested liver, enlarged spleen and slight ascites. There was a systolic bruit both at the cardiac apex and base, the basal bruit conducted into the arteries of the neck, the apical not being conducted into the axilla. These alone might have been due to functional derangement, but a systolic thrill made this seem unlikely.

The pulse at this time was of low tension and had considerable range of expansion, not consistent with any great degree of aortic stenosis. The gradual progress of the case, proved that the aortic orifice was affected. The heart underwent progressive enlargement, the apex beating in the sixth space as against the fifth when first seen. The thrill gained in intensity, and the systolic aortic bruit in loudness and roughness. The second sound was abolished, strongly pointing to aortic stenosis. There was no diastolic bruit in connection with the aortic area. At the apex, however, there was at times a mid-diastolic murmur. The pulse tracing was not very suggestive of aortic stenosis; there was a low tension, 95 mm. Hg., with an abrupt upstroke, yet there was clearly serious aortic stenosis. The question arises whether it was due to combined aortitis and valvulitis, or to a cicatricial contraction of cellular tissues surrounding the root of the aorta. The endocardial view is indicated, since there was evidences of aortic obstruction before any cicatrical process. A cicatrical process would almost of necessity involve neighboring vessels, such as the superior vena cava.

Gangrene From Syphilitic Endarteritis is discussed by A. Ravogli [6] who decides from pathologic and clinical data that when gangrene is produced by syphilitic in-

(6) Lancet-Clinic, Feb. 12, 1910.

fection, heroic antisyphilitic treatment is needed. In several cases through treatment the gangrene has been limited, the necrotic surface has sloughed off, and good cicatrization has followed. There is no benefit from treatment of the necrotic tissues, nor any whatever on the thrombosed arteries or veins. But when the syphilitic process has acted on the small vessels, then the limitation of the process may be obtained. In all his cases tonic treatment, and especially quinin in large doses, has been found of great value in overcoming sepsis. Syphilis is liable to induce gangrene at any period of the disease. Gangrene *en masse* occurs more frequently from endarteritis in the late stage of syphilis. Gangrene may be the result of an acute peripheral endangioitis of the small arteries, causing necrosis of superficial areas of the skin; or it may be the result of the pressure of the infiltrating elements on the blood-vessels and on the tissues in the center of deep syphilitic lesions.

Discussing Ravogli's paper, M. L. Heidingsfeld stated that according to Ravogli, the treponemata produce endarteritis obliterans by direct presence. The spreading endarteritis produces difficult circulation by occlusion of the vessels. Occlusion of the vessels produces the gangrene. It is doubtful whether the endarteritis of syphilis is due to direct toxemia of the treponemata or to some other general toxemia. From the universal and widespread distribution of this condition in syphilis it is evident that it is more than likely due to a general toxemia than to localized infection. Endarteritis obliterans is not pathognomonic of syphilis. Occlusion is often noted in local and generalized chronic inflammations. Endarteritis obliterans does not in itself produce gangrene and occlusion of vessels is not always followed by such a process as shown by thrombosis and ligation of important trunks. Gangrene is never attained without marked secondary infection. The secondary germs play an important, if not the all-important, rôle in the etiology of gangrene. Endarteritis or any general impairment may be a predisposing factor, but by no means necessarily the sole etiologic factor.

Ravogli states that syphilitic gangrene can be suc-

cessfully arrested by local antiseptic treatment. This would not be the case were the cause below the surface, not upon it. Gangrenous phagedenic ulcerations spread like local infection by direct extension. Syphilitic gangrenous ulcerations follow the same course and spread by direct continuity of tissue, not in accordance with the distribution of important bloodvessels. Many photographs which Ravogli has shown as gangrenous processes are ordinary necrotic ulcerated lesions of late syphilis. Ulceration and gangrenous necrosis is always more marked and evident when the surface of the skin becomes abraded and the door opened to secondary infection.

Syphilitic Febrile Pylephlebitis. A. R. Edwards[7] reports the following case: The patient was a 25-year-old man who six years previous to coming under care had gonorrhea, but no venereal sore at any time. A year before chills and fever had yielded to quinin. September 10, after drinking water which tasted stale, he developed malaise, severe headache, high fever, pains in the back and limbs, and went to bed. In the evening nausea was followed by three attacks of vomiting. He coughed, but no more than for the last eight months, from excessive smoking. There has been no chill, sweats, loss of weight, jaundice, urinary or circulatory symptoms, etc. The pupilary and other reflexes were normal; nutrition was good. The skin showed no edema, scars, or eruption. The genitalia were negative. The tongue was heavily coated with a moist white fur. The pharynx was negative. The lungs gave a normal resonance, free excursion and were free of râles. Heart examination was entirely negative, and the vessels were soft. The abdomen was retracted, but not rigid, and the edge of the liver was normal, being felt clearly on deep inspiration. The splenic margin was distinctly palpable, soft in consistency and slightly sensitive.

The patient's general appearance suggested typhoid fever, but the fever curve was irregular. A severe rigor occurred on the second day. A blood-culture taken on the first day was negative; the leucocyte count was 6400;

(7) Am. Jour. Med. Sciences, October, 1910.

a Widal test was entirely negative and the urine showed no diazo-reaction. The sunken, lax abdomen was repeatedly explored, but only the moderate splenic intumescence was found. Two more blood-cultures and two Widal tests were negative; the leucocyte count rose once to 11,400, but fell to 4,000 on the fifth day (September 18), and the fresh and stained blood was carefully and repeatedly examined for plasmodia, but with negative results.

The high fever elevations ceased after one week. For six days the curve hovered just above or below normal when suddenly, with a rigor and renewed pyrexia (Sept. 26), the patient complained of pain over the liver, which became tender, and a massive ascites developed during the day. This contrasted very decidedly with the abdominal retraction present up to this time. With the precipitate ascites the patient vomited severely at almost hourly intervals during September 26. The aspect of the patient was desperate, although the pulse remained slow and of fairly good quality. The possibility of rupture of the gall-bladder, stomach, or bowel was seriously considered for the next day. Operation was advised by some who saw the patient. The leucocytes counted 6,400. The urine, negative up to this time, became scanty (400 c.c.), was almost solid with albumin, and contained very many granular and hyalin casts and considerable blood.

From Sept. 26 to Oct. 8, the fever declined, but chills and an up-and-down curve reappeared. Another Widal test and blood-culture were negative. The blood showed no parasites. An ophthalmo-tuberculin test was completely negative. The red cells counted 1,440,000, the white 6,600, and the hemoglobin was 40 to 50 per cent. The differential leucocyte count was normal. There were no abnormalities in the stained specimen. Red and white cells, hyalin and granular casts, 3 per cent. of albumin, and a partial diazo-reaction were noted in the urine. The patient seemed extremely anemic, but without the lemon tint of pernicious anemia. Marked remission of the fever appeared Oct. 20 and Nov. 1. In the first week of November there were three febrile move-

ments to nearly 106° F., with daily variations of about 8°. What had seemed the maximum possible distension of the abdomen increased. The blood-pressure measured 135 mm. Further white counts were 8,400, 6,400, and 5,200. Two more Widal tests and three blood-cultures were negative. On Nov. 8 there was a rigor which lasted two hours. Vomiting and abdominal pain became more severe. On the mere possibility of lues, Nov. 14, the patient was given daily mercurial inunctions and 30 grains of potassium iodid three times daily internally.

Within three days the subjective gastric distress, abdominal pain, objective ascites, edema, and nephritis markedly improved. Fever, chills, and sweats were less frequent and less severe, and the patient's appearance was totally different. Nov. 28, the patient sat up, against orders. Point by point improvement increased, and although in December there were three, and in January two rigors and rises in temperature, the patient gained weight, color, and strength. Eighteen months later he was well and working. The Wassermann test was negative, but the patient then had been actively treated with antisyphilitic remedies for about two months.

Edwards points out that seemingly suppurative pylephlebitis, with intensely septicopyemic symptoms, may be syphilitic pylephlebitis with trepomemic sepsis. Vague or obvious portal-vein, gall-bladder, and liver symptoms may be syphilitic. Hepatic gummata may mimic hepatic cancer, even the characteristic cachexia and the significant gastric findings. Cases of seeming atrophic cirrhosis respond to antiluetic remedies. Cholelithiasis, cholecystitis, and hepatic abscess are simulated by hepatic syphilis. Tertiary invasion of the liver or portal vein may run its course without localizing signs, and masquerade as typhoid fever, septicemia, tuberculosis, or malaria. Negative Widal reactions, blood-cultures, tuberculin test, and examination for plasmodia suggest mercury and iodids.

Brain Syphilis During Secondary Stage is reported by H. Löhe.[9] In one case it came on three months after infection, receiving prompt and energetic mercurial

(9) Berlin. klin. Wochenschr., June 13, 1910.

treatment but proving rapidly fatal from arterial disease and incipient meningitis. In the second case initial sclerosis and hemiplegia came twenty-four days after infection, but they yielded to calomel. Both patients were robust soldiers of 28 and 31. The cerebrospinal fluid in each case gave a negative Wassermann reaction, while the serum was strongly positive.

Gumma Infiltration of the Meninges. G. R. Pisek [1] reports the case of a 6-year-old girl born prematurely, weighing 3½ pounds at birth. A younger brother was said to be in good health. The girl's only serious illness had been pneumonia and pertussis. A year previous to the report she had a convulsion, prior to which she had been deteriorated mentally and physically. Three weeks after her birth there had been palmar and plantar scaling which disappeared under treatment. The mother had been treated during the second pregnancy with the result of a healthy robust boy. The girl had marked hands and feet, the skin of the feet being dry and atrophic. When in the erect posture she assumed a leaning position from the hips. She could stoop and walk alone, but preferred help. In the sitting posture she had a relaxed spine. She had inguinal adenitis. The left median incisors were notched, and there was general dental caries. The heart sounds were normal. The liver was one inch beneath the right costal margin; the spleen was not palpable. Spasticity of the lower extremities exaggerated knee-jerks and Kernig's sign were present. There was general hyperesthesia, but no anesthetic zones. The language was repetitional and incoherent. The eyes showed a peppery granular appearance around the macular region and a pale disc. This was a descending optic nerve atrophy from degeneration-compression. A tentative diagnosis of gumma of the base was made upon the clinical symptoms. Neither father nor mother admitted luetic infection.

Thomson and Boas conclude that a positive Wassermann reaction in the mother lessens the chances of the child's being born sound. Latent syphilis might give a faintly positive reaction in the child or it might entirely

(1) Med. Rec., May 14, 1910.

fail during the first month. Mothers who bore syphilitic children were themselves to be looked upon as syphilitic if their blood gave a positive Wassermann reaction Pisek concludes that it would not be strange to find that 20 per cent. of mothers, whether they had symptoms or not, fail to show complement-fixation. Mothers of children with hereditary syphilis are probably syphilitic also.

Cerebral Syphilis, according to E. L. Hunt,[2] occurs in men about 35 years of age who have contracted syphilis 15 years previously to coming under observation. Physical signs consist of changes in the reflexes, both of pupils and of knees, the Romberg symptom and tremor of the facial muscles. The mental symptoms are a sense of depression and inability to perform regular work, a certain amount of mental deterioration, degradation and confusion. These patients do not care for their personal appearance; their clothes are not neat; their shoes are never cleaned; they do nothing; they are hypochondrical. This condition is much more frequently found than Hunt claims, as a premonitory or even early stage of paretic dementia. Very frequently, as Spitzka[3] pointed out 27 years ago, these patients after epileptiform or applectiform attacks very frequently develop full-fledged paretic dementia, even when anti-syphilitic treatment had been carefully carried out.

Treatment of Syphilis.

Intramuscular Mercury Injections in Syphilis. G. S. Walton[4] states that at the Liverpool Skin Hospital intramuscular injections of mercury during five years have had such satisfactory results that oral use has been discontinued. The forms used are gray oil and calomel suspended in sterilized olive oil, the latter being reserved for very severe cases. Gray oil is the form almost exclusively used. The formula is

Purified mercury	40 grms.
Sterilized anhydrous wool fat	12 grms.
Sterilized white petrolatum	13 grms.
Sterilized liquid petrolatum	35 grms.

(2) Jour. Am. Med. Assoc., May 7, 1910.
(3) Insanity: Its Classification, Diagnosis and Treatment.
(4) N. Y. Med. Jour., Mar. 26, 1910.

Of this oil a full dose is 5 minims, which is equivalent to 2.5 grains, or approximately 16 cgr. of mercury.

Administration is, after disinfection of the skin by a platino-iridium needle, from 3 to 5 cm. long, or, for very stout patients, 7 cm. in length, plunged deeply into the gluteal muscles about the midpoint of an imaginary line drawn between the anterior superior iliac spine and the top of the intergluteal furrow. This region is, as a rule, free from important vessels and nerves, and the injection is not likely to cause discomfort in sitting, cycling, or riding. After the needle has been introduced into the buttock, an empty hypodermic syringe is fitted to it and exhausted. In this way one finds out immediately whether the needle has penetrated a bloodvessel. This is a rare occurrence, but if blood should be drawn into the hypodermic syringe the needle should be withdrawn, thoroughly cleansed, and introduced at another point. If no blood is drawn, Barthelemy's syringe is taken, and, being charged with the required amount of gray oil, is fitted to the needle and the injection is made by slow steady pressure. The gray oil should be slightly warmed and well shaken up before charging the syringe. Syringe and needle are then withdrawn with a rapid movement in one piece, and the site of the injection is massaged for a minute or two to facilitate the distribution of the gray oil between the muscular strata. The site of injection is then covered with wool and collodion. The injections should be made in the right and left buttocks alternately.

As a rule, it will be found best to give full doses to robust patients with acute symptoms once weekly for six or eight weeks, or until the disease begins to recede, provided always that the patient is not losing weight. Then the dose is reduced by one half to 8 cgr. of mercury, and continued weekly, or a full dose is administered each fortnight until all the remaining symptoms have disappeared. A full course usually extends over three months.

During treatment patients should be urged to pay special attention to the teeth and gums. Carious teeth should be removed before mercury is first injected, and frequent use of a tooth-brush and of an astringent mouth

wash should be observed. Walton says the following mouth wash used in the British army for syphilitics undergoing injection treatment is very useful.

I.

℞ Lead acetate.....ʒi
Distilled water.....ʒv.
Dissolve.

II.

℞ Aluminum sulphate.....ʒi
Distilled water.....ʒv.
Dissolve.

Mix Nos. I and II and filter. The filtrate should be used after dilution with 19 parts of water.

As to treatment by intramuscular injections of calomel Walton is of the opinion that injections of this drug form one of the most effective methods of treating syphilis. It was first employed in this way by Julien in 1864, who had experimented with a variety of mercurial preparations and reached the conclusion that in serious manifestations of syphilis calomel is a sheet anchor. The method of injecting calomel is described by Walton as follows:

Ten cgr. of calomel and 1 c.c. of liquid petrolatum are placed in a special hollow, glass cone. A number of these cones are prepared and sterilized. A glass syringe with a wide-bore needle is used. The syringe is sterilized by boiling, and then placed in a 5 per cent. solution of carbolic acid. Before use it is washed through with alcohol. The skin of the part to be injected is sterilized with ether or alcohol. The nozzle of the syringe is inserted into the liquid; by working the piston up and down several times the calomel is intimately mixed with the liquid petrolatum and is easily injected through the needle. The quantity of calomel which is actually injected is considered to be about 7 cgr. The injection is made deeply, the needle being inserted to its full extent vertically to the surface.

Arsenic in Syphilis.[7] In the latter stages of syphilis, it will often be found that conditions arise, which are but imperfectly understood, or syphilographers have not regarded as worthy of notice. Among these are to be mentioned the rather eccentric behavior on the part of

(7) Am. Jour. Derm., May, 1910.

the appendages of the skin, or a still greater aberration from the normal, on the part of the cerebrospinal axis. It will, furthermore, be found that there seems to exist a total inefficiency on the part of the mercurials and iodin preparations. The use of these, instead of giving results of a character indicating improvement, will only produce their untoward effects. Such a condition is naturally unsatisfactory to physician and patient alike. Many physicians have looked upon such a condition in the light of an extraordinary event, not thinking for a moment that the patient has acquired a tolerance for the drugs, and no more improvement can be secured by persisting in their use. Some have determined to bring about results, and have succeeded in doing so by raising the doses of the medicine, and no results being apparent, the patients are given a prolonged rest. The rest method is one that is in high favor with a certain number of patients, and they enjoy it hugely until the syphilitic process places them in a helpless condition. Many medical men wonder at such a condition when a proper course of indicated medication should have placed the patient in a very satisfactory state. On the other hand increasing doses of the mercurials and iodids, would only put the tissues in a condition best defined as deplorable. All this has been due to the fact that they could not understand that the organism became habituated to the drugs, even when administered in large doses, until an increase in the latter would have fatal consequences. Up to a few years ago, this peculiarity in the treatment of the later stages of syphilis had been observed, and resort was had to tonics of a general nature, with varying success. The troubles on the part of the nervous system were referred to the disturbances in the sympathetic nervous ganglia and trunks, and this again led to the use of electricity in its various forms, faradic, galvanic, and static. This, however, was found to be incompetent and futile, and something better had to be devised and employed.

Then began a series of experiments with drugs that had various copyrighted names, and good results were noted following their use. A study of these compounds finally led other competent syphilologists to conclude

that, while these compounds acted in such an advantageous manner, the improvement must undoubtedly have been caused by the arsenic in these compounds. When this was announced a number of syphilologists at once adopted the plan of administering arsenous acid to their patients, and the results so obtained completely established the reasonableness of the method. Not only this, but it was found that the arsenic was synergistic to both the mercury and the iodid. This then was a new principle to establish. The deposits of mercury and iodids still remaining in the organism, could be utilized without producing any untoward effects on the tissues. On the contrary, the help afforded by the arsenic simply brought about a renewed action of the small quantity of mercury and iodids remaining in reserve, as it were, and they forthwith began to act in a manner curative in action and advantageous in results. The fact that arsenic is a good adjuvant to the mercury and the iodids that have been ingested, is not yet fully appreciated by the general medical profession. This fact should be called to the attention of practitioners of medicine, as a due appreciation of it would doubtless enable them to obtain results which before were looked upon as beyond their power. It may not be amiss to note, that while arsenic is recommended, arsenous acid is meant in the form of the Asiatic pill and that, in this form, it will produce the best of results; whereas, if it be administered as Fowler's solution it will not only not have the same effects, but it may, actually, prove deleterious.

The great advantage which this method possesses lies in the fact that it prevents the occurrence of lesions on the part of the nervous system. As is generally known, the nervous involvement which occurs in the course of tertiary syphilis is one that is to be feared more than the bone troubles or even gummata. The destructive process which occurs in the cord is one that is irreparable, and if it can be prevented from occurring, much misery is saved the patient. Moreover, brain troubles which come on in the late period, may be prevented by the exhibition of arsenous acid. It may also be observed that in cases of prenatal syphilis, the sympathetic nervous system is

very susceptible to changes of an untoward nature; and it is in this class of cases that arsenous acid manifests its most marked advantages. Such troubles as chorea, convulsions, trismus and a number of minor nervous ailments occurring in prenatal syphilis, are kept in abeyance and eventually cured by a course of arsenic. Very few books or journals lay sufficient stress on this remedy in the conditions named; or, in some cases, make no mention of it at all. The syphilitic child, until recently, has been looked upon chiefly as a furnisher of specimens of the *Spirocheta pallida.*

Sodium Cacodylate is used by J. B. Murphy[8] in doses of from 1 to 2 grains hypodermically into the muscles, and it has a most striking effect on the syphilides, mucous patches, and primary chancre. From the latter the treponemata disappear completely in forty-eight hours, the induration is markedly reduced in twenty-four hours, and it becomes a soft, clean ulcer in seventy-two hours. From that time on it repairs with the same speed as an aseptic sore of mechanical origin would heal in the same tissue. The adenopathies, except those with suppurating central foci, disappear in four or five days. The mucous patches repair in from twenty-four to forty-eight hours, the advancing ulcers of the palate and posterior wall of the pharynx clear up and heal as healthy granulating wounds in from three to six days, and the perforating ulcers of the palate repair in their margins leaving the perforation in a healthy condition. He has not pressed it in tertiary lesions.

Untoward Effects of Arylarsonates in Syphilis. According to C. A. Marshall,[9] blindness is a far from infrequent result of the administration of arylarsonates in syphilis.

Ehrlich's 606.

Dioxydiamidoarsenobenzol or 606 in Syphilis. Influenced by the untoward effects and benefits derived from atoxyl[1] in syphilis, Ehrlich replaced atoxyl by arsacetin, this by arsenophenylglycin and this by dioxy-

(8) Jour. Am. Med. Assoc., Sept. 24, 1910.
(9) Clinical Journal, July 6, 1910.
(1) Med. Klin., Aug. 14, 1910.

diamidoarsenobenzol which he labeled "606." In the exploitation and criticism of this remedy there has been exhibited that curious lack of scientific acumen and logic which so often marks and mars the exploitation of therapeutic procedures. The proper test of untoward-effect potentialities from any preparation is not its chemical formula, but its use in persons predisposed to untoward effects. Unfortunately the desire to secure advantage from appearing up-to-date, leads some physicians to use a remedy in favorable cases only, and report such results in absolute fashion. In November, 1909, Alt, with an arsenobenzol preparation obtained from Ehrlich, treated paretic dementia, locomotor ataxia and epilepsy of leutic origin with wonderful results. These are decidedly suspicious since spontaneous remissions in these disorders are peculiarly frequent, and the time is too short to judge of any permanent result. Untoward effects were denied by the first exploiters of the remedy, then charged to faulty technic and finally by Ehrlich himself in a case where death resulted, to the employment of the remedy in too severe a case. According to Ehrlich the remedy should not be used in severe syphilis; but only in syphilis without organic lesions or in patients who do not show mercurial effects. That there are very decided alterative effects from a single intramuscular or intravenous injection is evident. The influence of dioxydiamidoarsenobenzol on latent torpid luetic lesions is clear and decided. Such influences are peculiarly apt from increased metabolism, to produce emboli, thrombi or bloodvessel strain.

The tendency to ignore other factors likely to produce the states charged to untoward effects is shown in Ehrlich's analysis of the fatal case which he alleges was of too severe a type to be given dioxydiamidoarsenobenzol. The patient was a 33-year-old woman who in 1906 had luetic apoplexy and had since then undergone several inunction treatments without success, and in whom there finally developed paresis of both legs, muscular atrophy, tachycardia, etc. This patient, received in the afternoon an injection of 0.4 gram in neutral emulsion, intramuscularly. She suffered intense pain and re-

ceived two morphin injections; at 11 p. m. respiration became interrupted, and death occurred at midnight, although artificial respiration had been resorted to.

It is obvious that in such a case there are many factors which could produce sudden disturbance of the respiration even had no morphin been adminstered. Morphin in such a case might produce all the lethal effects charged.

Erich Hoffmann [2] doubts whether a single injection heals the disease. In a number of his cases he was unable to find treponemata. Anginæ, mucous patches and papules often disappeared without any local treatment, as well as indurated glands and the initial lesion. In one case of malignant syphilis and in a tertiary, ulcerating syphilide of the face he met with a strong reaction the day after the injection. He reports at length the following cases:

Case I. Congenital syphilis with syphilitic ozena in a 15-year-old boy. The symptoms presented were severe headache, unbearable fetor, exophthalmos and paresis of the abducens. Injection was made July 7 of 0.3 gram of 606. The symptoms disappeared almost immediately and there was a great subjective and objective improvement, but the strong Wassermann reaction was unchanged on July 23.

Case II. A 13-year-old female showed a tertiary ulcerating syphilide of the face involving the nose, right cheek, upper and lower lips. The Wassermann reaction being strongly positive on July 12, an injection of 0.3 gram of 606 was given. There was a very strong local reaction on the following morning. August 1, perfect healing followed, with the exception of the infiltrated border. Wassermann's reaction was mildly positive on July 28. Case III. A 34-year-old female, with secondary syphilis; universal papular exanthema, involving even the palms and the soles, proliferating papules on the genitals and patches in the mouth and on the tonsils, was given an injection of 0.3 gram of 606 in acid solution May 24. Fever followed for four days. On June 6, the exanthema was just visible, while the papules and patches were gone. Case IV. A 40-year-old male,

(2) Med. Klin., Aug. 14, 1910.

with ulcerating gummata of tongue and scrotum and ulcers in the left angle of the mouth for four years was given an injection of 0.3 gram of 606. A high fever and pleurisy due to an embolic central pneumonia, followed the injection.

J. J. Iversen [3] has found that intramuscular injections were very painful, and adopted the intravenous method of injection. The most efficient method is a combination of the intramuscular and the intravenous routes. Thus from 0.4 to 0.5 gram of dioxydiamidoarsenobenzol is injected intravenously, and after forty-eight hours 0.3 gram is injected intramuscularly. After the intravenous injections, within a few hours the temperature rises and there is a severe chill. The fever lasts but a few hours. Vomiting occurs in some cases. The results of the treatment upon the syphilitic lesions were excellent. The time required for action on the lesions varies a great deal, according to the anatomic nature of the changes. The Wassermann reaction became more marked after the injections at first, but disappeared as a rule in from twenty to thirty days. In no case in which the reaction had become negative did it return to positive. It is too early to speak of the permanency of the results or of the prevention of recurrences.

R. Hexheimer and E. Schonnefeld [4] inject dioxydiamidoarsenobenzol subcutaneously between the shoulder-blades and intramuscularly into the glutei. If the injection be made subcutaneously to one side of the vertebral column either too high or too deep, the patient complains either of radiating pains in the arm, or of a girdle-like constriction of the lower part of the chest. If placed exactly half way between the shoulder-blades, patients complain only of a moderate sense of tension. Massage is applied after the injection until the mass is comparatively divided. In the glutei, injections must be deep, wholly in the muscle and not at all in the fat. During the first day after the injection the patients have little trouble in walking, but sitting and lying are painful. As most patients are accustomed to lie on the right side

(3) Rousky Vatch, July 24, 1910.
(4) Med. Klin., Sept. 4, 1910.

injection is made in the left gluteus, in its upper, outer quadrant to avoid the sciatic nerve. The therapeutic effect produced is the same.

W. Wechselmann [5] has treated 600 cases. The erosive chancres become clean after from twelve to twenty-four hours and heal rapidly; in pronounced sclerosis the cleaning process is of the same rapidity, but absorption takes longer. In 4 cases there appeared after the healing of the primary lesion an exanthem which healed spontaneously in two patients in whom it appeared on the first and seventh day after the injection; the two other patients received a second injection. Mucous patches of the mouth heal in from twenty-four to forty-eight hours, even if the patient is an inveterate smoker. The roseola disappears in a few days, as do also the malign ulcerous syphilides, the rupia, the watery papules, the small papulous syphilides, which are otherwise so pertinaceous, and the gummata. Slower is the disappearance of the large papulous syphilides, and for these a second injection becomes sometimes necessary. Very favorable are the effects on syphilis of the bones; especially the night pains of the bones disappear as by magic.

Visceral lues also shows quick recovery, especially syphilis of the testicles and of the brain (epileptoid attacks). Icterus which has existed for a considerable time disappears in ten days. Syphilitic growth in the larynx which had produced such severe dyspnea and stridor that the case was received as one for tracheotomy disappeared quickly and remained only as a solid infiltration, which was treated four weeks later with a second injection; and edema of the larynx. Two patients with tumors from cerebral lues stood the injections well, although the symptoms were very severe as also did two patients who had only lately suffered from luetic apoplexy and a patient with a luetic apoplexy a few weeks old; these cases plainly showed improvement. In 5 cases of absence of the Wassermann reaction, in absolute lues, a positive reaction appeared after the injection, to disappear again.

(5) N. Y. Med. Jour., Sept. 3, 1910.

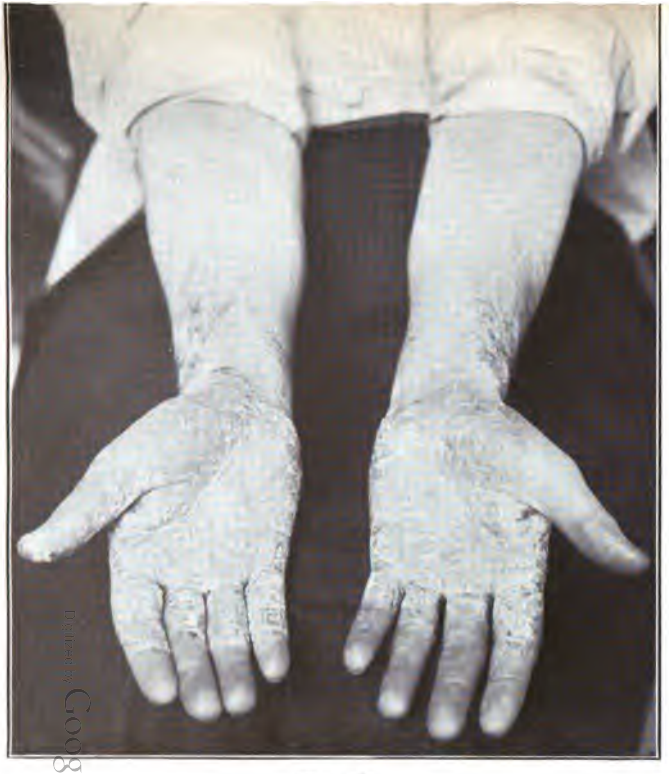

Plate V.
Scaling syphilid of palms. Duration of infection, three years: of palmar lesions, one year. May 16, 1910, 0.3 gm. 606. Wassermann before treatment, + + ; June 10, 1910 negative; Sept. 1, 1910, still negative.

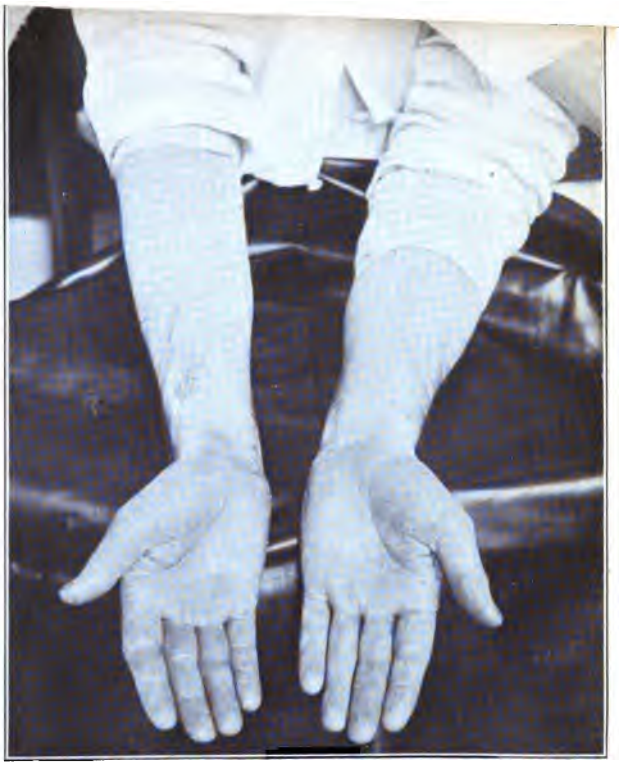

Plate VI.
Scaling syphilid of palms, same case as shown in Plate V. Condition of palms two weeks after treatment with 606. Illustrating article by Dr. Henry J. Nichols and Dr. John A. Fordyce, Jour. Am. Med. Assoc. Oct. 1, 1910.

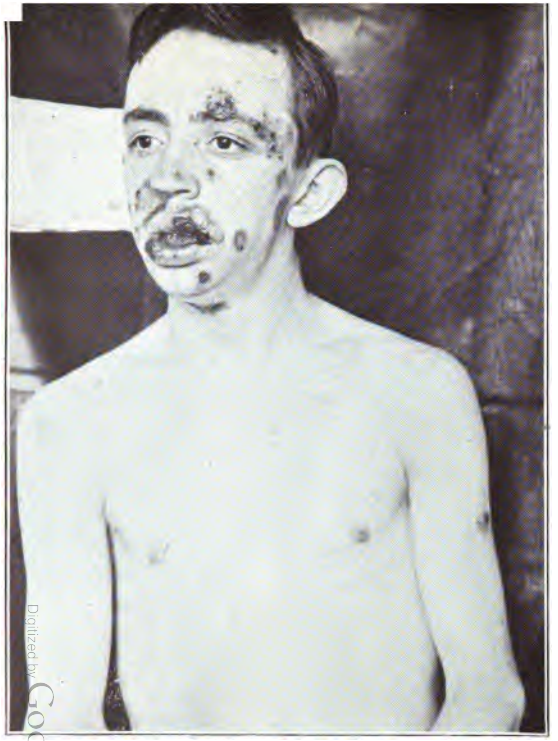

Plate VII.

Nodular and ulcerating syphilid. Date of luetic infection, Oct. 1909. Rupial and fungating lesions of face and arms of six months duration. May 19, 1910, received 0.3 gm. 606. Wassermann before treatment, ++; Aug. 30, 1010, negative.

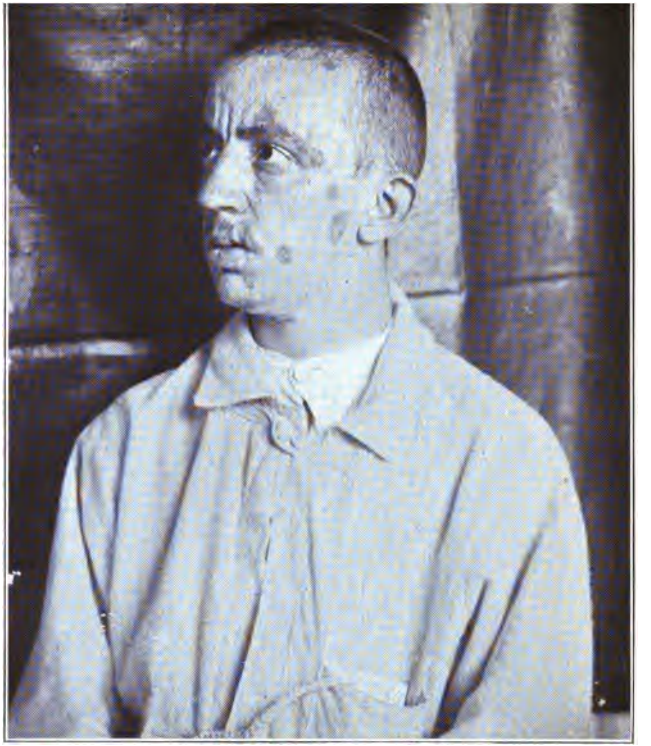

Plate VIII.

Nodular and ulcerating syphilid, same case as shown in Plate VII after treatment with 606.

Illustrating article by Dr. Henry J. Nichols and Dr. John A. Fordyce, Jour. Am. Med. Assoc. Oct. 1, 1910.

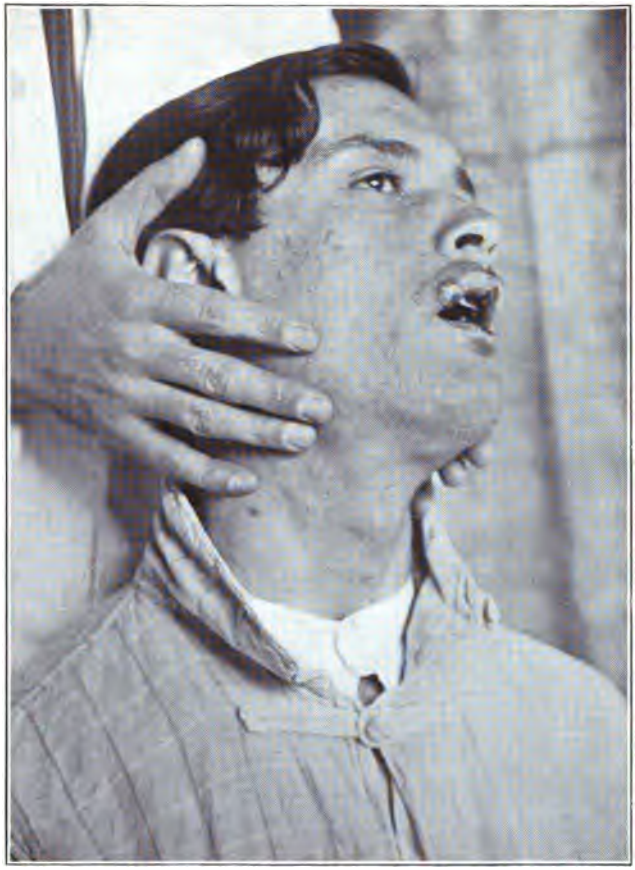

Plate IX.

Multiple chancres.—Infection, two months duration. Two chancres on upper lip and one on lower in median line; papuloerythematous eruption on body. June 2, 1910, 0.3 gm. 606. Wassermann before treatment++. Illustrating article by Henry J. Nichols and Dr. John A. Fordyce, Jour. Am. Med. Assoc. Oct. 1, 1910.

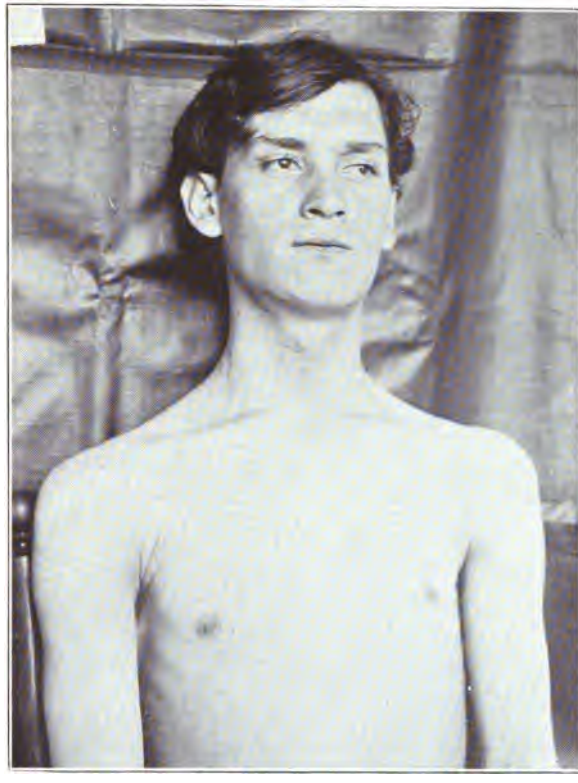

Plate X.
Multiple chancres, same case as shown in Plate IX, after treatment with 606.

Dioxydiamidoarsenobenzol is dissolved by triturating in a mortar in from 1 to 2 c.c. of a soda solution, when, by adding acetic acid in drops, a fine yellow paste is precipitated. This precipitate is then made sterile and dissolved in from 1 to 2 c.c. of distilled water and neutralized by the addition of 0.1 normal soda solution or 1 per cent. acetic acid, according to a very carefully ascertained reaction with litmus paper. The absence of pain depends upon the exactness of this neutralization. The deposit is centrifugalized and the paste which has been deposited at the bottom of the glass is shaken up with a physiologic sodium chlorid solution. This mixture is drawn into the syringe and slowly injected subcutaneously below the shoulder-blade in a place which has been made aseptic and treated with tincture of iodin. The injection does not produce a sensation of pain, but a few hours later there will occur a nervous pain of varying, but not excessive degree. On the third or fourth day there will appear a reactive swelling of a varying degree, sometimes with reddening.

A. Glueck [6] has treated 100 cases with dioxydiamidoarsenobenzol. His patients were of both sexes, varying in age from 12 to 70 years. The rapidity of healing is particularly noted. The size of the dose seems to have a special influence upon the shortness of the healing process in the tertiary form; in 6 cases given 0.3 gram, the symptoms disappeared in from twenty-one to forty-seven days; 6 given 0.4 gram recovered in from six to twenty-one days, and 2 that were given 0.5 gram were discharged in five days. In a case of syphilitic arthritis complicated with periostitis of the tibia and gummata of the skin not a trace of the trouble was left at the end of six days. Wassermann's reaction was observed in 20 cases. In 5 the reaction was negative in from thirty-five to forty days without repetition of the dose; in the remaining 15 in whom the test was made in from eight to twenty-one days after the injection, the reaction was positive. Almost every case with secondary symptoms was examined for spirochetæ, which usually disappeared in from twenty-four to forty-eight hours; in one

(6) Muench. med. Wochenschr., Aug., 1910.

case of sclerosis none could be found at the end of sixteen hours and in 2 others none on the fourth day. Thus far he has observed no recurrences, but the time of observation is too short to determine final results. In only 2 cases were the results not altogether satisfactory, and the patients required a second dose.

Neisser [7] reports results in 26 cases. Final conclusions cannot yet be drawn, as his earliest patients were discharged as cured only three months ago. There is a possibility that the single dose may be increased with advantage. In nearly all cases with visible symptoms of syphilis these have disappeared in a manner which is absolutely astounding. Exceptions were parenchymatous keratitis where "606" seemed to be without effect. Neisser favors intravenous injections, which, when carefully and properly made, are painless; this cannot be said of the intramuscular or subcutaneous injections. A patient 33 years of age suffered from luetic apoplexy and had since then undergone several inunction treatments without success, and in whom there finally developed paresis of both legs, muscular atrophy, tachycardia, etc. This patient, received in the afternoon an injection of 0.4 gram in neutral emulsion, intramuscularly. She suffered intense pain and received two morphin injections; at 11 p. m. respiration became interrupted, and death occurred at midnight.

According to J. E. R. McDonough [8] who has used it in 20 cases, dioxydiamidoarsenobenzol is only stable as a bichlorid, and as it must not be injected in the form of a double salt, it is converted into a mono-or a bi-sodic salt by the addition of sodium hydrate just before using. An emulsion is formed which makes it recessary to use a large needle. If the solution is neutralized the pain is greatly lessened. The author describes the method of neutralizing the preparation and the details of making the injections. It seems from the few cases treated that the earlier the syphilis the larger the dose required. If after an injection the rash becomes more profuse the temperature usually rises to 100° F. on the night of the

(7) Berlin klin. Wochenschr., Aug. 8, 1910.
(8) Med. Rec., Sept. 24, 1910.

injection, and becomes normal after four hours; sometimes the fever persisted to the third day, but only in those cases which had some toxic edema. In only one case was albumin found after the injection, and here it was transient. In almost every case an induration could be felt in both buttocks at the seat of the injection, which is probably due to a fibrosis caused by caustic action of the sodium hydrate, and it remains for time to tell whether these indurations will disappear. At any rate they produce no discomfort. Beyond the improvement noted with the naked eye, there was an extraordinary change for the better in almost every patient's general condition. They felt better and put on weight. Nearly every patient becomes depressed, anemic, and loses weight under mercurial treatment. The severer the case the quicker the action. A few cases of recurrence of symptoms have occurred and it is an open question whether the injection can be repeated and have the same action or not.

L. Pick[9] reports the results of dioxydiamidoarsenobenzol in 120 cases. These included: primary syphilis, before and after the outbreak of the exanthem of secondary syphilis, including 6 patients who still manifest scleroses; malignant syphilis; late syphilis, including gummatous osteoperiostitis and other gummata; hereditary syphilis; and syphilis of the nervous system. He noticed recurrence in 2 cases, one of malignant and the other of primary syphilis. The change of the positive Wassermann reaction to negative took place in most cases after four weeks. The shortest interval between the positive and the negative reaction was twelve days, the longest yet observed seven weeks. A change from a negative to a positive reaction had not yet been observed even in those cases in which there was a recurrence of the symptoms, or in which the symptoms did not wholly disappear. In the patients with primary syphilis who were treated preventively without secondary symptoms or a positive Wassermann reaction following, the longest period of observation was twelve weeks. He has not observed bad after-effects such as those described by Bohac

(9) Wien. klin. Wochenschr., Aug. 18, 1910.

and Sołotka, which might possibly be explained by a direct injury to the sciatic plexus. The fever following the injection reached the height of 39.8° C. in only one case. An erythema frequently appeared at the place of injection. Herxheimer's reaction was frequently demonstrable in secondary syphilis. A symptom very often observed for from four to six days after the injection was a diminution in the quantity of the urine, which fell in some cases to from 400 to 500 c.c. daily, while its specific gravity ranged from 1,015 to 1,020. This symptom might be ascribed to a reduction of the secretion, as it occurred in the cases in which the injection was followed by a profuse perspiration while the patients lost appetite and complained of thirst. The pulse in these cases ran from 90 to 108. The symptoms were not threatening. In resumé he says that this preparation develops a specific action such as has never been seen before in the treatment of syphilis. The quickness and promptness of its actions, exhibited wonderfully upon gummata, recall the action of quinin in malaria. Recurrences and the incomplete healing of certain forms with the small doses at present used derogate in no way from this wonderful action. The principal indications for the remedy are malignant syphilis, the obstinate affections of the mucous membranes, and preventive treatment.

Spiethoff's [1] experience in 50 cases has been favorable. He has treated 6 cases in the primary stage, 16 in the secondary, 12 in the latent secondary, 10 in the tertiary, 1 of congenital syphilis, 3 of tabes, and 1 of pernicious anemia and severe secondary syphilitic anemia. All the injections were intramuscular of the perfect solution or of Michaelis' emulsion. When the emulsion was used the injection was made on only one side of the gluteal region in order to permit the patients to lie down. The choice of the site of the injection depended on the habits of the patient. In 6 cases he used a dose of 0.3 gram in 2 of 0.45, in 4 of 0.5, in 26 of 0.6. The influence upon specific symptoms was often noticeable in twenty-four hours. Primary affections were covered completely with epithelium in from one to three weeks; phimoses due to

(1) Muench. med. Wochenschr., Aug. 30, 1910.

primary affection retrograded completely without local treatment within six days after a dose of 0.6 gram, in about three weeks after a dose of 0.3. In gangrenous primary sore which had nearly destroyed the prepuce and changed the glans into an ulcer, without local treatment ulceration disappeared at the end of seven days and was replaced by healthy granulations. Eight days later epithelization was complete. Mucous patches disappeared completely in two or three days after a dose of 0.6 gram. With smaller doses retrogression required longer time. In broken down gumma of the turbinate purulent secretion stopped twenty-four hours after an injection of 0.6 gram; on the second day breathing through the affected side of the nose was free, on the third day the ulcer was closed and a slight infiltrate alone remained. Local treatment had not been instituted.

The congenital case was that of a badly nourished two-months-old child who had an extensive papulo-pustular syphilide, infiltration of the lips, coryza, and osteochondritis in one arm. An intramuscular injection of 0.02 gram was given. Three days later distinct retrogression of the exanthem and of the infiltration of the lips was evident. After seven days the arm, which had previously hung laxly down, moved somewhat. In five days more, active and passive motion of the arm was free and painless; twelve days after the injection the exanthem had disappeared, the coryza was less, and the child's nutrition had improved. Retrogression of general glandular swelling was not observed even in patients three months under observation. This contrasts sharply with the effect on individual glands in two cases. In one the patient had an indolent, hard gland as large as a hen's egg below the right ear dating back to the outbreak of secondary symptoms, about two months, which had resisted all previous treatment. One hour after the injection of 0.6 gram the patient became nauseated; five minutes later he broke into severe perspiration and at the same time had such severe pain in the gland beneath his right ear that he could not move his head. After an hour, pain lessened and the gland grew smaller until

six hours after injection it was but one-third its former size. In twelve hours more it was no larger than the other nuchal glands. Treponemata usually disappeared in from twenty-four to forty-eight hours after a dose of 0.6 gram; when they were still demonstrable at the end of twenty-four hours they presented certain signs of degeneration. The chief contra-indication is a very bad general condition with serious non-specific organic changes, particularly of the circulatory organs.

Duhot reports a case in which an injection into the mother produced a transformation in her nursling from a weakly infant apparently about to die from syphilis into a blooming plump child.

Erhlich says that patients with far advanced degenerative processes of the central nervous system form a special group endangered by introduction of dioxydiamidoarsenobenzol. In 2 cases death has resulted after subcutaneous and intramuscular injections. Small doses, from 0.3 to 0.5 gram, may be injected into the veins without hestitation when there is no serious disease of the brain, arteriosclerosis, functional disturbance of the heart, particularly angina pectoris, or any tendency to optic neuritis.

GENITO-URINARY MEDICINE AND SURGERY.

Prostate Gland and Urethra.

The Prostatic Urethra, according to J. A. Hawkins,[2] is the part most concerned in diseases of the deep urethra. Inflammation involving it differs in no wise from that of the membranous or spongy portions. Should the entire urethra from the bladder to the meatus be dissected from its bed of connective tissue and removed and then split in its entire length and spread out flat, one could scarcely tell one end from the other, except that in the prostatic end one might be able to note gland-openings and openings corresponding to the utricle and the ejaculatory ducts, and the surface would be greater. Its peculiarity is due merely to structures continuous and contiguous with it. The prostatic urethra averages about 3 cm. in length in a man not afflicted with prostatic hypertrophy.

The following case illustrates contraction of the internal urinary orifice: A 63-year-old man suffered from urinary trouble six years previously when he passed a calculus. Two years later frequent micturition began, in day-time much oftener than normal and at night as often as every half hour. The urethra was 9 in. long. The residual urine was 6 oz., cloudy, containing pus, large flakes and red cells. The prostate was not prominent by digital examination. A diagnosis of prostatic obstruction with possible stone in the bladder was made, and the bladder explored by Young's method. No stone was found. The prostate was not very large but hard to get at owing to its depth. The tip of the index finger was with difficulty inserted into the vesical neck, which was then stretched. The bladder was drained through a tube which was removed at the expiration of the second day. Great pain was then experienced at the end of each

(2) N. Y. Med. Jour., July 2, 1910.

micturition, and he was able to retain the urine but for a short time. At the end of a week it was decided to open his bladder anteriorly, and with a finger in the internal orifice through the suprapubic wound and a knife through the perineal opening, Hawkins was able to cut the constricted internal orifice in three places and then to stretch it by sliding one index finger alongside the other. The feel of this opening to the finger was similar to that felt in trying to push the finger through the mouth of a two-ounce bottle. The patient now requires the passage of a 32 sound at intervals to keep open the stricture of the internal urinary orifice.

This same condition is often present where a perineal section is made for the relief of urinary fistula with a chronic prostatitis. Suppurative lobular prostatitis is responsible for many cases of "morning drop." Enlargement of the verumontanum with spastic contraction of the posterior urethra prevents pus from passing into the bladder, and it seeps along the urethra to the external meatus. A positive evidence of its presence is the appearance of a copious discharge in a patient who to all intents and purposes is about well. This phenomenon is due to an infected lobule becoming filled with pus caused by its duct becoming plugged and, from prostatic muscular contraction or bodily exertion this plug is forced out, allowing the pus to flow into the urethra. Where only an alveolus attached to one of these prostatic sinuses is involved only a minute quantity of pus is thrown out.

The verumontanum is responsible for much more human suffering than is generally charged to it. There are certain chronic cases in which examination of the posterior urethra with the urethroscope will show the presence of a very large and succulent verumontanum. The *caput* will be seen filling the urethra at this point. The actual cautery will serve well to reduce the swelling, but a quicker and better way is to remove the top of the hypertrophy with the sharp edge of the deep urethral tube. Only a small portion will be removed, as the swollen *caput* will be pushed away from the cutting edge of the tube. It is remarkable how quickly this little

operation will produce benefit in the patient suffering from a discharge from the deep urethra due to this cause and with a train of symptoms of sexual neurasthenia. Hawkins rarely cuts off the top of the veru, because he finds that applications of strong solutions of silver nitrate will accomplish the same result, though requiring a little more time. These applications should not be made oftener than once a week, although there is little reaction following them.

Inflammation of the verumontanum is not always due to gonorrhea, although this is its most frequent cause. It may be due to any of the causes which produce prostatitis and it cannot be distinguished from the latter except by examination with the deep urethroscope. It may also complicate a prostatitis or a seminal vesiculitis, especially the latter. Reflected pain is a common symptom and by remembering that the sacral plexus is the origin of the sensory nerves to this structure, reflected pain may be found at any part supplied by this plexus. Pain in the anterior two inches of the urethra is a very common symptom and one may be led to that part of the urethra in search of the cause. Frequent desire to urinate with efforts to evacuate another drop or two after completion of the act is a symptom common to many patients. In rare cases there is marked tenesmus with the appearance of a drop of blood with the last drop of urine. A fullness or heaviness in the deep urethra which may be reflected to the rectum is a frequent symptom. Shreds may be present in the urine today and gone tomorrow. Irritation of the sexual apparatus is usually marked. Continued erections without apparent cause, even while the patient is waiting for treatment, have been observed. Later, from prolonged irritation, the opposite train of symptoms appear—loss of desire for sexual indulgence, weak erections, premature or delayed ejaculation. With the occurrence of ejaculation the patient is often annoyed by sharp pain of varying degree in the deep urethra or reflected to the rectum or perineum. Examination of the prostate and vesicles may show them to be normal, but usually the prostate is somewhat enlarged. The vesicles may or may not be en-

gorged. Pruritus ani and hypochondriasis are frequently present.

When the deep urethral tube is gently passed, if the urethra is fairly normal, there is usually no bleeding, but if inflamed, blood will soon ooze into the tube. When inflamed the verumontanum bleeds in proportion to the degree of its engorgement. If much inflamed and the tube has failed to start bleeding, sometimes the mere touch of the cotton mop will induce slight hemorrhage. This is why reflected light is preferable to direct illumination. The veru, as it bobs into the fenestra of the tube, very much resembles an exposed glans clitoridis.

Prostate Hypertrophy. A. Götze [4] reports 334 cases. He operated in 11 per cent. of the cases for the prostate alone, but in over 17 per cent. operation was undertaken for complications. In 24 cases the patients were under 50. It is possible by hygienic and dietetic measures to keep the first phase of hypertrophy stationary for many years. Cystitis heals entirely if the amount of residual urine be not excessive and if the bladder wall be sound. Under other conditions the cystitis persists, refractory to all measures, even when the mechanical obstacle has been removed. Stagnation of the residual urine was responsible for stones in 71 per cent. of his cases. With patients complaining of severe gastro-intestinal disturbances, frequent thirst and desire to urinate, a prostatic affection in an advanced stage should always be suspected. Diabetes here clearly should also be taken into account. He lost one patient from postoperative pulmonary embolism. Riedl called attention to the peculiar liability to this accident and to thrombosis in the prostatic region.

Prostatecomy. The most animated phase of genito-urinary surgery is the controversy between the advocates of the suprapubic and the perineal operation. According to A. H. Ferguson [5] the median incision is the one of choice in the vast majority of cases, because through it rapid, efficient work can be done with excellent results, especially by a surgeon whose hand is not too large and

(4) Zeitschr. f. Ur., April, 1910.
(5) Ill. Med. Jour., May, 1910.

who is ambidextrous. Some excellent surgeons have such large fingers that they are practically excluded from attempting perineal prostatectomy. While a short, slender finger is at a disadvantage as compared with a long slender digit, still with the aid of instruments which drag the gland down into the perineum, the former can do satisfactory work. As one surgeon has aptly said that a short finger becomes longer by experience, so a stout finger acts as a cork. The median transverse, Y-shaped, T-inverted, semilunar, and the Ferguson median perineal incision is given the preference. In a very limited number of cases the entire prostate may be removed without injury to prostatic or membranous urethra. This can never be done suprapubically. Nearly all operations by the perineal route open the membranous and prostatic urethra, the one for the purpose of introducing instruments which aid in the operation, the other to afford ample room for enucleation. Some cases are best dealt with by the suprapubic route, but they are vastly in the minority. Most cases should be first explored through the perineum. If portions of hypertrophied prostate cannot be removed through the perineum, it does not compromise either the surgeon or the patient to open suprapubically and complete the operation. This is much safer than suprapubic prostatectomy alone, or the combination operation reversed. More knowledge can be gained of the size, shape and extent of prostatic protrusions into the bladder by the finger in the perineal wound than by cystoscopy before operation.

The bladder is washed out with an antiseptic solution, and 6 or 8 ounces of the fluid are then left in the viscus. A plug of gauze is next inserted into the rectum, and a grooved staff is passed *per urethram* into the bladder. Then the patient is placed in the extreme lithotomy position and held by assistants. To perform the operation pass the middle finger of the left hand into the rectum, split the perineum in the median line from behind forward, open the membranous and prostatic urethra as far back as the *sinus pocularis* and pass the index finger of the left hand into the wound as the staff is withdrawn. In exposing a membranous urethra to

median incision it is probably better to cut the skin first and to dissect carefully through the other soft structure down to the urethra, in order to insure against injury to the bulb. Next remove the finger from the rectum and pass the prostate depressor into the bladder as the finger is withdrawn.

Remove the glove from the left hand and reinsert the finger into the wound and search for a line of cleavage within the capsule of one or both lobes of the gland. Usually the cleavage can be found near the apex of the prostate and to the left, because the knife generally cuts a little to this side as it opens the prostatic urethra. If the cleavage is found, a small transverse incision is made alongside of the finger through the capsule. By means of the prostatic depressor the gland is pulled down as it becomes enucleated by the finger, sometimes in less time than it takes to describe the process. It will be found that the separation of the gland is interfered with where it is covered with vesical and prostatic urethral mucosa. Pulling and tearing should be avoided here; large portions of prostatic tissue may be grossly cut away by means of Ferguson's prostatic cutting forceps. Both lobes being removed the interior of the bladder may be readily explored by the finger. If there are protrusions of prostatic tissue in the shape of a pathologic middle lobe, or prolongations from either or both lateral lobes determine whether the growth is sessile or pedunculated. If sessile, it is an easy matter to enucleate it with the finger or remove it by *morcellement*. If the growth is pedunculated and cannot be delivered through the perineum wound, then the operation should be completed suprapubically.

Where enucleation is easy and the bladder not septic, deep sutures (No. 0 chronic catgut) are employed to close the urethra and bring together the edges of the levator ani muscles. A small cigarette drain is employed to take care of the discharge from the perineum alone, and the skin is closed by horse-hair.

In septic cases and in very old men with marked prostatic deformity, the gland must be removed as rapidly as possible. The safety of the rectum from injury and

the rapidity of the operation may be increased by the use of a double-edged gouget with a beaded point which strikes the groove in the staff, and the knife is passed through the prostatic urethra in a firm gentle curve. The gouget splits the prostatic urethra laterally, and its flat posterior side is toward the rectum, protecting it from injury. This is not the operation of choice. Total enucleation of the prostate gland by Freyer has shown that the preservation of the prostatic urethra is not of so great importance as the advocates of perineal prostatectomy believed. With this in mind attack the enlarged prostate without regard to the prostatic urethra and rip it from its bed where all the structures are in reach of the finger. One type of gland, the chronically inflamed prostate, usually atrophied, can be removed only piecemeal.

Practically all the sequelæ formerly obtained in perineal prostatectomy in a small percentage of cases are now prevented by the experienced operator. The worst result that can be obtained in prostatectomy is death. It is interesting to note that for years the mortality of suprapubic prostatectomy (McGill) when combined with lithotomy, has been less than when no calculus was present. Burckhardt gives 13.8 per cent. mortality (4 deaths and 77 cases) for the latter. This difference can be explained only on the assumption that the presence of stone necessitated operative interference earlier, and while the patients were better able to endure an operation than when no calculus existed. The death-rate from McGill's operation (partial suprapubic prostatectomy) has always been higher and always will be. Belfield collected 88 cases of McGill's operation with 12 deaths, a mortality of 13.6 per cent.; Moulin in 1892 collected 94 cases with 19 deaths or 20.2 per cent. mortality. Ferguson has had 185 consecutive cases of perineal prostatectomy with 7 deaths, a mortality of 3.7 per cent. This includes all of the early cases, when the operation was in a developmental stage and much less satisfactory, the patient being confined to bed and the drainage not removed for much longer periods. It certainly does not represent the true mortality. During

the past two and one-half years Ferguson has had 100 cases with only 2 deaths, a mortality of 2 per cent. The most convincing evidence of the benignity of the operation is the fact that in the last 60 consecutive cases there has not been a single death or bad result.

Suprapubic Enucleation of the Prostate. In Freyer's 644 operations of enucleation of the prostate to date, were 48 octogenarians and 9 bordering on this period with 6 deaths. In connection with these 644 operations, there have been 39 deaths in periods varying from 6 hours to 37 days after operation or a mortality of 6.05 per cent. The mortality has been gradually diminishing from 10 per cent. in the first 100 cases to 4.24 per cent. in the last 200. Freyer's average mortality is 6.05 per cent. Fuller believes the suprapubic operation easier and quicker than the perineal. When the gland is very small and the abdomen very fat, he selects the perineal operation. He cites from Proust, Watson, Herwitz, Lepus, Hartman, Pouchet, Rafin, Young and Albarran, 2,222 cases with an average mortality of 6.23 per cent.; out of the total number operated on mortality is about the same in both operations (3.5 per cent. perineal; 3.3 per cent. suprapubic). Shock is the cause of death in 17.8 per cent. operated on suprapubically.

After perineal prostatectomy, reëstablishment of spontaneous urination and relief of vesical infection are the rule. Sexual loss is habitual. The age of the patient and the lesions are not contra-indications. Relative integrity of renal activity is necessary. Patients with grave organic disorder (diabetes and albuminaria) succumb to alleged shock.

There have been no permanent fistulæ in those with pus-furnishing bladders, which were inflamed, trabeculated and with stones, pouched or diverticulated. The natural tendency of the perineum is to close spontaneously but so long as pus emits, a fistula is likely to persist or recur. Injury to the rectum during operation is a blunder rather than an accident. Secondary rectal fistula are most often caused by rough treatment from the eighth to the twelfth day when granulation is profuse. One case of stricture secondary to operation was cured

by perineal section. Five patients had epididymitis. One had unilateral intranephritic and extranephritic abscesses developing three weeks after operation. He was cured by incision into the bladder and drainage. Six patients had vesical calculi.

B. L. Freyer [6] points out that the prostate is in reality composed of twin organs, which in some of the lower animals remain distinct and separate throughout life, as they exist in the human male during the first four months of fetal existence. About that period in the human fetus they approach each other and their inner aspects become agglutinated, except along the course of the urethra, which they encircle. Their secreting functions remain distinct, their respective gland-ducts opening into the urethra on either side of the verumontanum. Each of these two glandular bodies is enveloped by a strong fibromuscular capsule, which extends over the entire organ except along the anterior and posterior commissures or bridges of tissue that unite the lateral lobes in front of and behind the urethra, thus filling in the gaps between them. This capsule is intimately connected with and forms part of the prostatic mass and is incapable of being removed from it even by dissection. Each ejaculatory duct courses along the inner aspect of the corresponding lobe, but does not penetrate its capsule, passing forward in the interlobular tissue to open into the urethra. The prostate thus constituted is further incased in a second capsule or sheath formed mainly by the rectovesical fascia. Embedded in this sheath lies the prostatic plexus of veins.

The suprapubic operation. The pubes having been previously shaved and the parts purified, suprapubic cystotomy is performed. The bladder is thoroughly washed out with an antiseptic lotion, the catheter used for this purpose being made of stiff gum-elastic and of the largest size that the urethra will readily admit. The bladder is then distended with lotion and the catheter left *in situ.* An incision varying in length from 2½ to 3½ inches, according to the stoutness of the patient and the previously estimated size of the prostate, is made in

(6) Jour. Royal Army Med. Corps, December, 1909.

the median line of the abdomen, its lower end reaching to the level of the pubic arch. This incision is rapidly carried down through or between the recti muscles till the prevesical space is opened. Any bleeding vessels being clamped by catch forceps, the forefinger is introduced into the lower angle of the wound and the prevesical fat scraped upward off the bladder by the finger-nail for the whole length of the wound. The peritoneum, which should not be seen, is just pushed upward out of harm's way and the bladder appears deeply in the wound, quite tense, glistening, and of a pale white color, with large and tortuous veins coursing in its substance. Selecting an area devoid of veins, the point of the scalpel is plunged boldly into the bladder, and an incision about an inch long is made in the vertical direction toward the symphysis. The wound in the bladder can be enlarged subsequently if necessary; and this is best effected, as being attended by least bleeding, by separating two fingers placed in the wound and tearing the bladder wall to the required extent. On withdrawal of the scalpel the forefinger is introduced into the bladder as the lotion rushes out through the wound, and a general survey of the viscus is made. Should calculi be present they are forthwith removed by forceps or scoop.

The forefinger of the other hand is now introduced into the rectum, to render the prostate prominent in the bladder and to keep it fixed during the manipulation by the finger in the bladder. The mucous membrane over the most prominent portion of one lateral lobe (or over the so-called "middle" lobe if there be but one prominence) is scored through by the finger-nail and gradually detached by it from the lobe. The other lobe is similarly attacked and laid bare of mucous membrane.

The portion of the enlarged prostate prominent in the bladder is covered by mucous membrane, so that when this latter is scraped through and detached the true capsule of the prostate is at once reached. Keeping the point of the finger in close contact with the capsule, the enucleation of the prostate out of the enveloping sheath outside the bladder is proceeded with by insinuating the finger-tip in succession behind, outside, and in front

of one lateral lobe, thus gradually separating the capsule from the sheath. The finger is successfully swept in semicircle fashion from behind to the front of the lobe until the triangular ligament is reached. The other lobe is similarly detached from the sheath, the finger completely sweeping round the vesical end of the prostate. During the course of these manipulations it will be found that, as a rule, the anterior commissure of the prostate will have opened out; indeed in a large proportion of cases it will have already opened out into the course of the prostatic enlargement, the prostatic urethra assuming the form of a deep furrow rather than a tube. The finger is then passed down deeply behind the gland and first one lobe and then the other detached with ease from the triangular ligament. The prostate now lies loosely in the sheath, hanging on merely by the urethra and the ejaculatory ducts. During the course of enucleation the urethra anterior to the verumontanum becomes detached from the lobe so that the finger point can be inserted between the urethra and the lobes on either side. If the tip of the finger now be placed behind the prostate in the middle line above the ejaculatory ducts and the prostate be propelled upward into the badder by the finger in the rectum, the urethra will be found to snap across at the verumontanum, leaving the ejaculatory ducts as a rule, adherent to the anterior portion of the prostatic urethra that is left behind.

The prostate, which now lies free in the bladder, is drawn by strong forceps through the suprapubic wound. And here it is astonishing through what a comparatively small wound a very large prostate can be delivered owing to the elasticity and compressibility between the blades of the forceps of the adenomatous growth. In the vast majority of the cases the prostate has opened out like an oyster along its anterior commissure in the course of the enucleation. The forceps should be applied to one of the lobes, which is withdrawn through the wound, the other lobe following. In this manner the prostate is delivered through a wound in the bladder one-half the size that otherwise would be necessary.

Freyer has now completed 664 cases of total enucle-

ation of the prostate, the patients varying in age from 49 to 89 years, with an average of 69 years. There were 49 octogenarians. The average weight of the prostate is 2¾ ounces. Existence had been simply unendurable to most of the patients. There were 40 deaths in periods ranging from four hours to 37 days or a mortality of 6 per cent. The mortality has been steadily decreasing from 10 per cent. in the first 100 cases to 4.24 per cent. in the last 200. Sixteen patients died of uremia; 6, from heart failure; 2, from septicemia; 5, from shock; 1, from exhaustion mania; 2, malignant disease of the liver; 2, from heat-stroke; 1, from pneumonia; 1, from acute bronchitis; 2, from pulmonary embolism and 1 from cerebral hemorrhage with paralysis. Fully half the deaths were due to diseases incident to old age unconnected with the operation. In 110 cases vesical calculi were removed at the same time. There are no relapses, no contractions at the seat of operation leading to stricture, no fistulæ remaining and no diminution of sexual power after operation.

The Penis.

Circumcision Operations in the Young are often troublesome, according to A. E. Newman.[8] Postoperative complications occur. The penis may be edematous to the point of making urination difficult. In certain cases swelling and induration subside only after removal of the stitches. More or less oozing of blood may persist for days or a hematoma of no small size delay the union of the parts. Inflammation in the tissues may be marked; this may abate rapidly or pass away only after the skin has broken and discharged its pocket of pus. In nearly every circumcision occurs swelling of the organ. When the purse string suture was advocated this condition was marked. If many interrupted stitches are placed close together so as to secure too perfect a coaptation of the edges, the edema appears very promptly after twenty-four hours. A few loosely tied stitches give a decidedly better result. Cannot the skin be cut so that the edges are sufficiently approximated for a good re-

(8) Jour. Am. Med. Assoc., Nov. 20, 1909.

sult? If this can be done, the blood and lymph can more readily find a vent; the trauma to the tissues resultant from handling with the tissue forceps and needle and thread will be minimized; the reaction from the operation less disturbing. In a series of cases the following operation has been carried out with this idea in mind and the result has been most satisfactory. The wound required very little attention; the comfort of the patient was not interfered with; a good result was obtained in five to ten days. The penis is held in place by two snaps, which pinch the skin of the organ between the selvage edge of two lengthwise adjusted towels.

When the penis is in position, the location of the glans is determined and the amount of superfluous prepuce noted. One hemostat is applied above and one below in an oblique line so that more skin is removed from the under surface than from the dorsal. The hemostats pull the foreskin forward and then the skin is cut off with straight scissors. If the tissue be correctly removed the skin edge will retract to the corona. In the removal of the foreskin of a babe in the first months of life it is well to bear in mind that the parts are all diminutive and that the entire corpus is not much longer than the glans. Carelessness in this results in almost complete denudation of the organ, the skin retracting to the base of the penis. The inner skin layer, or mucous membrane layer, as it is sometimes called, is then slit down the dorsal surface to within one-fourth of an inch of its attachment. The edges of the inner layer are held with a few hemostats to facilitate the removal of all but a small collar at its attached edge. The little bleeding vessels, two to four in number, are caught up and in every case tied with plain No. 00 catgut. This saves much postoperative annoyance. A piece of gauze with a small opening at its center is steeped in melted 10 per cent. boracic petrolatum and applied to the parts at the completion of the operation. The dressing is changed if it comes off and may be discarded completely on the third day. The parts are then protected by boric ointment.

Plastic Corpus Cavernosum Induration, according to

H. J. Whitacre,[9] is a progressive, painless, connective tissue thickening in the fibrous tissue sheath of the corpus cavernosum which appears in men over fifty years of age, and is not the result of local disease in the penis. The patient may notice the appearance of nodules or a hardening of the penis, but does not often present himself for medical advice until there is a bending of the penis in erection or an incomplete erection. When the penis is flaccid it presents an entirely normal appearance, the skin and subcutaneous tissue are entirely normal, there is no difficulty in urination, and there is no pain. On palpation hard nodules, plates, or cords are found on the upper surface of the corpora cavernosa and particularly in the septum. The most typical site is in the septum near the symphysis. From here an elongated, definitely circumscribed tumor may extend forward for one to two inches, or detached more or less separate nodules may extend as far forward as the glans penis. These nodules are very hard, have a smooth surface, are somewhat elastic, and appear to be fairly well circumscribed. They are not sensitive to the touch. Spreading out over the upper surface of the corpora cavernosa there may be plates of this same tissue. These plates may be in saddle-form or confined to one side. Such plates are likewise, as a rule, well circumscribed, have a smooth surface and are quite hard. They may exceptionally extend completely around the penis to give a ring-like constriction, or they may take the form of lateral longitudinal bands. The nodules in the septum may be the size of a pea or a bean, and the elongated tumors may attain the diameter of a lead pencil. These nodules develop painlessly, and grow progressively until they reach a certain size when they remain stationary. They show no tendency to diminish in size or to disappear.

The most important symptoms occur in erection. The tumors or plates lead to a bending of the penis, when erect, at the site of the induration. When the induration is mainly in the septum the penis will bend upward toward or actually against the abdomen; when on

(9) N. Y. Med. Jour., Mar. 19, 1910.

one side, the curve will be toward this side. A great variety of shapes are possible. Depending upon the nature and degree of disturbance with the circulation, the distal portion of the penis will be much smaller when erect than the proximal portion, or it may be less hard or it may be entirely flaccid. Such deviation or such incomplete erection will make coitus impossible. Erection may furthermore be attended with pain, or pain may be experienced only at the time of emission because of a kinking in the urethra. The nervous symptoms attendant upon such a disturbance of function are usually quite marked, and suicide may result. When a patient attempts to straighten the curve forcibly a fracture of the corpus cavernosum may occur and symptoms of this condition be added. The bloodvessels adjacent to the nodules show evidence of an endarteritis.

No cause is known for the development of this lesion. Trauma, inflammation and syphilis are not etiologic factors. Gout, rheumatism, diabetes, leukemia, smallpox, typhoid fever, typhus fever, cellulitis, and a great variety of other general diseases have been suggested, but the connection is certainly not clear. It has been noted that some of these patients likewise suffer from Dupuytren's finger-contraction. The microscopic findings are practically the same in the two conditions. The differential diagnosis concerns itself with the exclusion of traumatic, inflammatory, syphilitic and malignant tumor lesion. The prognosis as regards recovery is extremely unfavorable.

Therapeutic medication has given no results. Treatment by iodin has been extensively used and is advised by many writers as the only medication likely to improve the condition. Massage, hot and cold applications, mercury preparations, rubbed on and injected, plasters and salves have likewise been used without result. Waelsch obtained complete healing after the injection of fibrolysin, but the same agent used by other authors has given no results. Operation has not benefited, because of the tendency to recurrence of the fibrous tissue and because of the deformity which is likely to result from scar tissue formation. The operative treatment

would seem to be the only one which is likely to give results. Whitacre reports 2 cases, one being that of a 63-year-old married merchant. The penis was of medium size and normal in appearance when flaccid. Three hard nodules could be felt, one in the septum at the base of the penis which was about one inch long and one-fourth inch broad; a second, also located in the septum, three-quarters of an inch long and beginning one-half inch behind the corona; a third nodule or plate of firm tissue, on the right side of the penis and separated from the other nodules.

At the first examination there was a question of malignancy and a fragment of tissue was removed from the largest nodule for microscopic examination, which showed a fibrous tissue structure. Under urgent solicitation an operation was performed a few weeks later. The danger of deforming cicatrices, and of adhesions between the skin and corpus cavernosum has been urged by many writers as a reason for refraining from operation on the body of the penis. Whitacre was convinced by experience that this danger existed. He believed that a semilunar incision in the pubic skin just above the base of the penis would give access to the greater part of the corpus cavernosum and that it would avoid all adhesions. An incision two and one-half inches long was accordingly made in this way. Excellent exposure of the mass at the base of the penis was obtained and there was no difficulty at all in pulling out the entire length of the body of the penis in a sort of loop through this incision. All fibrous tissue was then dissected away as fully as possible down to the vascular part of the corpus cavernosum. A large amount of firm connective tissue was removed. An effort was made to remove tissue symmetrically and to stop just short of opening up the sinuses of the corpus cavernosum. This was not always possible. When as much had been removed as seemed wise there was still a great amount of connective tissue visible which it seemed might readily act as a basis for rapid regeneration.

Healing was rapid after operation and there was not the slightest adhesion between the skin and deeper tissue

and there was no apparent development of a deforming cicatrix at the site of the wound. There was marked induration in the line of dissection on the dorsum of the penis, however, which lasted for a few weeks. This softened greatly in time, but there is to-day a well defined indurated fibrous mass in the septum and on the right side. The induration is very much less in amount and the penis feels more normal on palpation, yet the symptoms are not relieved. The penis still bends upward and erection is not quite as firm as before operation, but coitus is still possible. The second case was similar.

The Scrotum and Testes.

Varicocele. J. H. Johns[1] employs the following procedure. After resecting the veins by the Bennett-Howse method, a clamp is so applied to the scrotum as to allow the removal of the redundant portion. Twelve or fourteen silkworm-gut sutures are introduced through the clamp-holes, using slender, trocar-pointed needles. The sutures are then gathered into two bundles and clamped. Incision is then made through the skin with a sharp scalpel, about one-eighth of an inch from the clamp, the remaining tissues being cut through with stout scissors curved on the flat. The subcutaneous tissues, consisting of dartos and cremasteric fascia, are then sutured with a No. 0 plain catgut continuous suture, using a small round-pointed fishhook or fistula needle. The first turns of a surgeon's knot are then made in the silkworm gut, and drawn tight. The clamp is now removed, and after waiting a few minutes for the hemorrhage which always follows removal of the clamp, to cease, the skin-edges are brought together with a No. 0 plain catgut, continuous suture on a long, straight needle. The silkworm-gut sutures are then adjusted and knots completed. The reason for this is that they may be loosened and bleeding points caught and tied. This is rarely necessary, but easily done, since the buried hemostatic suture prevents wide gaping even if the silkworm-gut sutures be untied.

Tunica Vaginalis Rupture in Hydrocele is of more frequent occurrence than is usually supposed, according

(1) Gulf States Jour. of Med., August, 1910.

to Somerville Hastings.[3] Although it may occur as the result of traumatism, this is not often the sole cause. In fact, additional causes must be admitted, and rupture may even take place spontaneously. Further, in nearly every case in which careful examination of the tunica vaginalis has been made it has been found diseased at the point of rupture. Only the serous layer is usually involved, but occasionally the fibrous tunic is also torn. After the accident the hydrocele slowly refills or a hematocele may follow; rarely does a spontaneous cure result. The best treatment is radical cure of the hydrocele, and the best time for operation is when the greater part of the effused fluid has been absorbed.

Malignant Testicle and Spermatic Cord Disease. The immediate risks of orchidectomy for malignant disease, remarks J. Bland Sutton,[4] under modern conditions are trifling. The remote results are most discouraging, for within a few months in most instances, the disease returns in the stump of the spermatic cord (recurrence); or the lumbar lymph-glands become infected with cancer and form huge masses in the abdomen (direct lymphatic infection); or secondary nodules appear in various parts of the body (dissemination). The modern method of extirpating the primary growth, the associated lymphatics, and the lymph-glands (or nodes) in dealing with cancerous organs has greatly improved the remote results of operations designed for the relief of cancer, yet no one has attempted to apply this method in malignant disease of the testicle. Sutton therefore determined to remove the testis, the spermatic cord, with its arteries, veins, and lymphatics, and the associated lymph-glands which lie on the inferior vena cava.

In September, 1909, a 31-year-old man consulted him on account of an enlarged right testicle. The increased size of the organ, its weight, and non-translucency indicated clearly that the organ was attacked by malignant disease. The enlargement was obvious in February, and had been progressive. The left testis was retained in the inguinal canal. The following operation was done:

(3) Lancet, Apr. 9, 1910.
(4) Lancet, Nov. 13, 1909.

The scrotum was freely incised and the right testis was exposed. Sutton then introduced the scalpel into the testis to satisfy himself that the enlargement depended on a growth. The testis was freed from its investments and the spermatic cord was isolated as far as the internal abdominal ring. After much of the loose scrotal skin had been removed, the bleeding vessels were ligatured with fine silk, and the testicle was enveloped in a fold of sterilized gauze. Up to this point the operation had been conducted with hands enclosed in sterilized rubber gloves; these were removed and the hands were carefully washed for the second stage. This consisted in making a free incision of the right abdominal wall in the line of the *linea semilunaris* from the costal arch to the opening in the inguinal canal. The incision divided all the structures of the anterior abdominal wall down to the peritoneum. Gentle tension on the testicle soon showed the position of the spermatic vessels lying in the loose areolar subperitoneal tissue. In order to isolate them they were surrounded by a thin silk ligature just before their termination in the vena cava. The vas deferens and its artery were ligatured and divided at the brim of the pelvis. At this stage the retroperitoneal tissues of the right lumbar region were well exposed, permitting examination of the parts about the aorta for enlarged lymph-glands. One was found on a level with the third lumbar vertebra, lying on the anterior face of the vena cava; although as big as a haricot bean it shelled out easily. A very careful search was made for other lymph-glands but without success. In spite of the large area of tissue opened up there was very little loss of blood, and the only vessels, apart from the spermatics, which required to be ligatured were those divided in the scrotum and in the abdominal wall. The abdominal incision was closed by means of interrupted silk sutures, and the cut edges of the scrotum were brought together by sutures of thin silk. It was thought prudent to insert a narrow rubber tube into the depths of this extensive wound for 24 hours. The wound was dressed with sterilized gauze and Gamgee tissue, held in position by a many-tail bandage, reinforced in the in-

guinal region by a spica bandage. A febrile healing followed, with rapid convalescence. The patient left the hospital on the seventeenth day after the operation.

The parts removed were hardened in equal parts of methyl alcohol and water. The enlarged lymph-gland sections contained cystic spaces lined in some sections with columnar or subcolumnar epithelium. In a few it was stratified. Ten days after the operation Sutton divided the testis and found a cystic tumor occupying the space between the epididymis and the body of the testis. The secreting tissue, compressed into a thin stratum, formed a strap over the upper pole of the tumor.

On microscopic examination the tumor presented a complex arrangement of intercommunicating tubules embedded in a richly cellular connective tissue stroma, showing here and there, cylindrical knobs of hyalin cartilage. In some parts of the stroma, strands of tissue very like unstriped muscle tissue were seen. The tubules were lined with epithelium, which in some of them was stratified, and in others columnar in shape. When the structure and epithelial lining of the tubules in the primary tumor were compared with the cysts in the lymph-gland removed from the loin the identity was complete. This is sufficient proof of the malignancy of the tumor. Sutton has studied during twenty-five years the secondary deposits of malignant disease, but no better example of the detailed reproduction of the structural features of a primary tumor has come under his observation than the cystic growths which were found in the lymph-gland of this patient. In 1853 Curling named this condition "general cystic disease" of the testis, and pointed out two of their most important features, namely, the frequent presence of hyalin cartilage in them and the fact that such tumors are situated between the epididymis and the testis proper. This led Curling to believe that such cystic tumors arose in the rete testis.

There are three kinds of tumor which arise in the tissues between the epididymis and body of the testis. In their type forms they are quite distinct and receive specific names: (a) adenoma testis; (b) cystic disease of the testis; and (c) dermoid or teratoma of the testis. In

their intermediate forms they run one into the other, and examples occasionally come to hand in which the characters of all three are blended. Typical adenoma testis is a solid tumor; it is composed of tubules formed of epithelium with a narrow central lumen. The epithelium resembles the epithelial cylinders which are often found in the renal sarcomata of infants, but in testicular adenomata the epithelial cylinders often lie juxtaposed without the intervention of connective tissue. Tracts of cartilage are sometimes present, while here and there in some apparently completely solid tumors, cysts due to the dilatation of the tubules, are seen in the sections.

The cystic form differs from the adenomatous species in that the epithelial cylinders are dilated and the lining epithelium has become altered in shape in response to the pressure exerted by the accumulated fluid within the tubule.

The dermoid or teratomatous species is as striking in its general naked-eye features as the cystic form, for it contains hair and often teeth. It is in most developed type the rarest of testis tumors.

These three species constitute a genus, testicular teratoma. In type forms they present clearly defined characters, but in intermediate forms they run gradually one into the other. The dermoid or teratomatous species contains all the structures found in the solid and the cystic forms. The mode of origin of these tumors in the tissues, between epididymis and testis proper, constitutes a very striking common feature independently of the histologic evidence concerning the similitude of the peculiar structures which form so much of their bulk.

Vesical and Renal Calculi.

Vesical Calculus. H. W. Austin [5] reports the case of a 45-year-old-man who lost a self-prescribed catheter but did not report this on his admission into the hospital. He suffered from complete incontinence and slight chills and fever. An obstruction was found just forward of the bulbous urethra. A urethral forceps grasped what was apparently an elastic catheter, but its removal by

(5) N. Y. Med. Jour., June 4, 1910.

the natural passage being impossible, a suprapubic incision was made and a lithotomy forceps (a stone having been detected in the bladder) inserted, and the calculus removed without breaking. The catheter was coiled up in the stone, the free end extending into the urethra. However, with a little manipulation stone and catheter were cleanly withdrawn. The stone was of the phosphatic variety, weighed ninety grams and measured six inches in its smallest circumference and over seven inches in its longest.

Pyelotomy in Renal Calculi. According to Perineau,[6] conditions arise in which attempts to remove calculi by an incision into the pelvis of the kidney may be dangerous or impossible, because of a certain anatomic peculiarities of the patient. Much fat or a short pedicle may prevent a satisfactory delivery of the kidney. Lesions secondarily occurring about the kidney may render free separations from its adhesions impossible. The calculi may be too large. Large calculi, which demand too free incisions of the pelvis, branching or adherent calculi, do not lend themselves to removal by pyelotomy. The operation would also seem to be contra-indicated in the presence of numerous small calculi. On the other hand movable calculi, limited in number, of moderate size and regular form, offer the most favorable conditions for the operation. Deductions made from *x*-ray plates furnish valuable aid.

Pyelotomy does not damage the renal parenchyma and it permits retrograde catheterization of the ureter. It is, surgically speaking, more rational to attack a foreign body by the most direct route. Asepsis has removed fear of fistula, though Tuffer and Barth in experimental nephrotomy upon dogs found that on later examination of the kidneys of their animals the parenchyma was but slightly compromised, yet in performing this operation upon the diseased kidneys with the unavoidable tearing and manipulation of its tissue incidental to removal of stone extensive sclerotic processes have followed. Functional tests show the kidney did not recover its normal output. Again with stone in the renal pelvis secondary

(6) Ann. des Mal. de Voies Genito-Ur., February, 1910.

changes have taken place in the affected kidney and to a less extent upon the opposite side; therefore the secreting substance should be spared as much as possible. The case of retrograde ureteral catheterization, thus determining the potency of the ureter, is a great advantage in pyelotomy and is an important factor in ensuring a favorable issue to the operation. Legueu and Marion have never been able to pass a catheter into the ureter through a nephrotomy incision. Hence in this respect the advantage lies entirely upon the side of pyelotomy, and during the performance of nephrotomy one can never be certain whether the ureter is open for its entire length.

Thirty years ago pyelotomy[7] enjoyed a brief favor among surgeons. However, preference for nephrotomy as a means of approaching the renal pelvis soon swayed the minds of the majority, leaving but few adherents to the former method. More recently with improvement in *x*-ray technic and further study which has shown the risks of the earlier operation to have been exaggerated and its scope of usefulness less limited, the question of pyelotomy as a method of choice has again been revived. Several surgeons who formerly advocated nephrotomy exclusively, now under appropriate indications employ pyelotomy for removal of stone from the pelvis. It had been held that the kidney must be freely delivered before incision could be made into the pelvis, owing to the necessity of closing the incision by suture before replacing the organ, because without suture fistula would certainly result. This, however, is not true. In not one of 18 cases in which Zuckerkandl left the pelvis incision partly open did fistula occur. Large stones may be removed by prolonging the incision in the pelvis into the parenchyma; thus another objection to the operation is met. Small hidden stones need not be overlooked with the *x*-ray as a guide and an incision large enough to admit the finger. Makkas, however, believes nephrotomy preferable in pyelitis, pyelonephritis, pyonephrosis, in sclerosis of the fatty tissue surrounding the renal pelvis, in the presence of large coral stones and in cases in which the diagnosis is obscure before operation. Nephrotomy is at a dis-

(7) Deutsche zeit. f. Chir., January, 1910.

advantage compared to pyelotomy in its postoperative hemorrhage. In pyelotomy pelvic suture is made in three steps,—a submucous, continuous with fine catgut, and a continuous Lembert with fine silk. The fatty tissue about the pelvis is then united with a third line of sutures. The first alone suffice at times for primary union without fistula.

The Bladder.

Bladder Tumors are discussed by E. S. Judd,[8] who finds that if the neoplasm be in one of the upper quadrants near the dome of the viscus, dissecting the peritoneum intact from its posterior surface, the suprapubic incision exposing the bladder through the space of Retzius, gives a very good exposure. In case the tumor have its attachment at or near the base, it is necessary, in order to do a technical and radical operation to open the peritoneum first and pack off the intestines and omentum as in resection of other organs, and then open the bladder through its peritoneal surface.

The incision into the bladder is closed in a manner similar to that employed in closing the stomach or intestine after a resection. All of the coats are turned in, and the peritoneal surfaces approximated. No leakage occurred in any of the cases where the incision was made through the peritoneum, while some of the suprapubic cases developed temporary sinuses. The rapid and firm healing of the peritoneum probably accounts for the better results obtained with the former method.

It will not be necessary to establish drainage unless the prostate or urethra has been interfered with. In Judd's experience patients have done better without a permanent catheter. Many of them will void their urine from the beginning, though some of them will require catheterizing for the first twenty-four hours at intervals of every two hours until they are rid of the clots of blood.

High Frequency Current in Bladder Tumors. E. L. Keyes[9] uses Beer's apparatus, which consists of a small insulated cable about the size of a No. 6 ureter catheter,

(8) Northwestern Lancet, November, 1910.
(9) Am. Jour. Surgery, July, 1910.

and fitted for employment through any modern catheterizing cystoscope. This wire is attached to a high frequency current apparatus introduced into the bladder through the cystoscope and manipulated therein after the manner of the ureter catheter. Keyes used the D'Arsonval or double pole current. At first he placed only one pole in the bladder, leaving the other pole in the patient's hand, but latterly he places both poles in the bladder, tying the ends together, and using them as a double ureter catheter. It is, of course, not necessary to tie the ends together, but as this gives a relatively fixed spark gap, it seemed better to do so. Later, he has used the Oudin, or single pole high frequency current with good success. The wires must be in absolute contact with the tumor; one gets as near the base of the tumor as pacticable, plunges the wires in, and then turns on the current. The duration of the burning varies with each case. By the time one has made ten or twenty burns the fluid in the bladder is usually pretty well clouded, and the patient quite satisfied to close the proceedings for that sitting. The average duration of burns has been from five to ten seconds.

Vesiculovesical Fistula is reported by G. K. Swinburne [1] in a 32-year-old neurasthenic who was unable to work, and in whom the slightest jar or lifting or other muscular movement would cause a spurt of urine from the urethra. He complained of continuous pain along the right cord between the testis and the ring. The history he gave was that nine years before he had had an attack of gonorrhea, with sequelæ. Two years previously he had a second attack of gonorrhea, which became chronic, and in November, 1908, he began to have difficulty in passing urine. This led to an operation early in 1909, which was followed by the symptoms of which he complained. The operation was for chronic prostatic enlargement, perineal section with drainage being done. The bladder was of good capacity and contained no residual urine. The urethroscope showed a normal posterior urethra, with no bleeding, but when the window of the urethroscope exposed the verumontanum, the

(1) N. Y. Med. Jour., Apr. 23, 1910.

instrument filled with urine, which it was difficult to get rid of by suction and swabbing. This seemed to show that there was a passage between the bladder and this point of the posterior urethra outside of the urethral canal. He also found that, after the patient voided urine and emptied the bladder, a catheter passed into the bladder did not immediately bring urine, but in a few moments about a dram of urine would come away. With the indirect Otis systoscope, Swinburne was able to locate both ureteral orifices, normally located. He then proceeded to examine the trigonum by turning the lens toward the floor of the bladder, and on depressing the handle he observed an irregular, oval opening with a rather ragged edge, situated on the right border of the trigonum. Its inner surface was irregular in outline, with several depressions, and he took it to be the interior of the vesicle. This opening was about one-half inch long and one-quarter inch wide. It did not extend so far forward as the internal meatus. The case should serve as a warning to surgeons who are inclined to be hasty in resorting to perineal section in the hope of relieving urinary conditions due to neurasthenia.

MISCELLANEOUS.

MISCELLANEOUS.

Medical Education and the History of Medicine.

The Arrangement of the Curriculum. In the Presidential address at the Seventy-seventh Annual Meeting of the British Medical Association Sir William Whitla [1] discussed the need of reform in the teaching of the preliminary scientific subjects which occupy the first three years of the medical course so as to give room for more clinical work. This he claims can be secured only by a radical change in the method of teaching the entire group of preliminary and scientific subjects. In accordance with the pronouncement of the University of London the teaching of these subjects must be conducted with due regard to their bearing upon the special requirements of the student of medicine. In the words of Professor Starling: "From the very commencement of his medical curriculum the work of the student should be directed; every scientific subject which he studies, whether it be chemistry, physics, or physiology, should be considered only in its bearings on his future work as a medical man."

Whitla ventures to suggest that these words should be written in letters of gold and set up in the retiring-room of each teacher of the preliminary and intermediate subjects in our universities and medical schools, when soon we would cease to see the lamentable fiasco of the attempt to make every medical student an accomplished physicist, an analytical chemist, an experimental physiologist, a practical botanist, and an expert zoologist, as these phantoms dangle before his mental vision whilst he is already far advanced in putting in a vain and perfunctory attendance at his final classes, or whilst he is absent-mindedly

(1) Brit. Med. Jour., July 31, 1909.

sauntering about the externe department, or wandering aimlessly through the hospital corridors.

Professor Starling maintains that this "directed" method of teaching should also be applied to the subject of anatomy, where the minute knowledge which is insisted upon at the present time as regards the direction of muscular fibers, the insignificant markings on the bones or the identification of fragments of human bones can have no bearing on the student's future work, even if he is to be an operating surgeon, and that all anatomy should be learned as surgical and medical anatomy. He believes that "by such a method, far from sacrificing the scientific training of the student, we would insure that the whole of his science studies, preliminary or intermediate, would be built up with his clinical training into one compact scientific fabric—the science of man and his diseases."

Ideal of Medical Education. The following three qualities are named by C. S. Minot[2] as distinguishing qualities of the ideal physician and of the desirable medical student:

1. A faculty for exact observation, classification of facts, and judgment in drawing conclusions.
2. Intellectual endurance, a sustained mental power, a ceaseless passion for knowledge.
3. Loyalty, a sense of responsibility. The student should be made to feel from the very start that his purpose in life must be to serve, and that devotion to his studies is his initiation into the life of perfect devotion to his patients.

The ideal medical school should be planned to develop these qualities, and this can be done only in schools adequately provided with facilities for laboratory teaching. The outlook in America is full of encouragement. Nowhere else in the world has laboratory instruction advanced as far and well as in this country. Germany must look to her laurels, for the whole university tradition there exalts the lecture. The system is strongly entrenched, for the professors depend on lecture fees. The future of scientific education depends on laboratories, and unless European universities imitate the American

(2) Jour. Am. Med. Assoc., Aug. 14, 1909.

laboratory standards the stream of students from Europe to the United States will soon be greater than that of a generation ago from our country to Germany.

The laboratory education is our one sure foundation. It is indispensable that it be amply provided for; if that cannot be, the failure ought to be acknowledged and the school closed. It is in the laboratories only that the power of observation can be disciplined and developed, and that the students can acquire genuine knowledge. In speaking thus, the hospital is classed with the laboratory. A laboratory is an efficient influence only when it is a place where original research goes on actively. While it is true that the informational purpose guides the daily labor, and that it is indispensable that the student make by observation personal acquaintance with as many phenomena as practicable, yet it remains also true that the student should find in the laboratory an ideal standard of work—and the only possible high ideal is that of original investigation. It is relatively easy, under the guidance of an experienced instructor, with materials carefully prepared beforehand, to confirm by actual observation the statements of the text-book.

Medical schools not only ought to be, but must be centers of research in order to succeed. To this end each school should be closely allied with the postgraduate department of its university, and the various medical sciences should be on a par in academic standing with the other natural sciences. Scientific students not intending to become physicians should be encouraged to enter the medical laboratories, and the highest university degrees should be as open to students of anatomy, pathology, bacteriology, physiology, etc., as to students of zoology, chemistry, or physics. If this policy be adopted with zeal, the reaction on the medical school will be wholesome, the effect on the university at large, uplifting.

Minot emphasizes the importance of securing the best men as professors. In selecting a faculty the prime consideration should be the ability of the candidate to do original research of a high order. A man should not become a professor chiefly because he is a good teacher. Such a man may be a good school teacher but only investi-

gators can give university instruction. It goes without saying that a university teacher must be by character and manners fitted to join a society of scholars and to come into intimate contact with young men and women. We can not, however, make every respectable gentleman a professor; but we must be sure that he has a sound, powerful, creative intellect, of which the only satisfactory proof is original research of a high order. In comparison with the possession of this intellectual gift, all other endowments are subsidiary. Professors may vary much in their ability to lecture, their availability for administrative work, in their adaptation to social life, in their capacity for business, in the quality of their minds; but all good professors are necessarily alike in the possession of creative mental power.

Minot summarizes his views as follows: A good medical school produces good physicians. The medical profession is a very difficult one, and to meet its requirements exceptional men must receive a splendid special training. Therefore, a good medical school will accept only such students as have been selected by severe tests with high standards; it will maintain lofty ideals of knowledge, of observation, of judgment, of original thought and of loyalty. It will uphold these ideals not only by striving to furnish every important material facility in laboratory and hospital, but also by engaging able instructors. The good medical school may become great which adopts as its motto: Great professors make a great school.

H. Pomeranz [3] laments the ignorance of physicians as to medical history. He does not lay all the blame at the feet of the physician but attributes this ignorance to the total neglect of the subject by medical schools and colleges. Its value has been underrated by many, yet Herman Baas makes the following estimate: "The study of the history of medicine, above that of all other medical branches, should give a more ideal direction to our conception of our calling by showing that its duties and its rewards are not to be found exclusively in our daily labors and scanty pay (as is, alas, too often the popular belief), and by pointing out the fact that only in struggles and

(3) N. Y. Med. Jour., Sept. 25, 1909.

labors directed to the intellectual advancement of humanity—struggles unnoticed even in the present and probably too long in the future—lie the fertile germs of futurity and a scion of improvement for all mankind."

From a communication with leading medical institutions in every state of the Union, Pomeranz found that not one had a compulsory and few an optional course upon medical history. The principal defense made by the various institutions was lack of time.

The Earliest Physicians. In an address to medical graduates J. J. Walsh [4] gives an interesting account of medicine about 6,000 years ago. The first picture that we have of a physician in history is that of I-em-hetep, whose name means "the bringer of peace." He had two other titles according to tradition, one of which was "the master of secrets," evidently in reference to the fact that more or less necessarily many secrets must be entrusted to the physician, but also, doubtless, in connection with the knowledge of the secrets of therapeutics which he was supposed to possess. Another of his titles was that of "the scribe of numbers," by which, perhaps, reference is made to his prescriptions which may have been lengthy, for there are many "calendar" prescriptions in the early days, but may only refer to the necessity of his knowing weights and measures and numbers very exactly for professional purposes. I-em-hetep lived in the reign of King Tchser, a monarch of the third dynasty in Egypt, the date of which is somewhat uncertain, but is about 4,500 B. C. How distinguished an individual he was in his time may be gathered from the fact that the well known step pyramid at Sakkara, the old cemetery near Memphis, is attributed to him. So great was the honor paid to him that after his death he was worshipped as a god, and so we have statues of him as a placid looking man with a certain divine expression seated with a scroll on his knees and an air of benignant knowledge well suited to his profession.

The oldest document after the time of I-em-hetep which we have with regard to medicine is the *Ebers Papyrus*, the writing of which was done probably about 1,600 B. C. This, however, is only a copy of an older manuscript or

(4) N. Y. Med. Jour., Aug. 28, 1909.

series of manuscripts, and there seems to be no doubt that the text, which contains idioms of a much older period, or indeed several periods, probably represents accumulations of information made during 2,000 or even 3,000 years before the date of our manuscript. Indeed it is not improbable that the oldest portions of the *Ebers Papyrus* owe their origin to men of the first Egyptian dynasties, nearly 5,000 years B. C.. To be members of a profession that can thus trace its earliest written documents to a time seven thousand years ago, is an honor that may be readily appreciated and that may allow of some complacency.

Perhaps the most interesting thing about this early history of medicine in Egypt is that with the very earliest dawn of medical history, we have traces of highly developed specialism in medicine. There were thirty-six departments of medicine or at least there were thirty-six medical divinities who presided over particular parts of the human body. In the larger temples at least there was a special corps of priest physicians for each one of these departments.

Of course it is easy to think that these specialties did not amount to much, but any such thought is the merest assumption. A single instance will show how completely at fault this assumption is. Dentistry is presumed to be a very modern profession. As a matter of fact mummies were found in the cemetery of Thebes whose bodies probably come from before 3,000 B. C., who have in their teeth the remains of gold fillings that were well put in, and show good workmanship, nearly 5,000 years ago. After dentistry the specialty that we would be sure could not have had any significant existence so long ago would be that of ophthalmology. As a matter of fact it is with regard to the knowledge of eye diseases displayed by these early teachers of medicine that the *Papyrus Ebers* is most startling. It was especially full in diagnosis and contained many valuable hints for treatment. As for laryngology and rhinology, one of the earliest medical records that we have, is the rewarding by one of the kings of Egypt of an early dynasty, (nearly 4,000 B. C.,) of a physician who had cured him of a trouble of the nose of

long standing, that seems to have interfered with his breathing.

It is easy to think in spite of all this, that the Egyptians did not know much medicine; but only one who knows nothing about it thinks so. Over 700 different substances are mentioned as of remedial value in this old time medical work. There is scarcely a disease of any important organ with which we are familiar in the modern time that is not mentioned here. While the significance of diseases of such organs as the spleen, the ductless glands, and the appendix was of course missed, nearly every other pathologic condition was either expressly named or at least hinted at.

With all this activity in Egypt, it is easy to understand that the other great nations of antiquity also have important chapters in the history of medicine. The earliest accounts would seem to indicate that the Chaldeans, the Assyrians, and the Babylonians all made significant advances in medicine. It seems clear that a work on anatomy was written in China about the year 2,000 B. C. Some of the other Eastern nations made great progress. The Hindoos in particular have in recent years been shown to have accomplished very good work in medicine itself. Charaka, a Hindu surgeon, who lived not later than 300 B. C., made some fine contributions to medical literature in Hindostani. There were hospitals in all of these countries, and these provided opportunities for the practice of surgery. Laparotomy was very commonly done by Hindu surgeons, and one of the rules enjoined on Hindu students was the constant habit of visiting the sick and seeing them treated by experienced physicians. Clinical teaching is often spoken of as a modern invention, but it is as old as hospital systems, and they go back to the dawn of history.

It is among the Greeks, however, that the most important advances in medicine were made. This is, however, not so much because of what they did as from the facts that they were more given to writing, and that their writings have been better preserved than those of other nations.

Practice of Medicine Among the Ancient Hebrews. H. Pomeranz [5] gives a review of the history of the earliest practice of medicine among the Hebrews. The Egyptians considered the healing art of divine origin and kept all knowledge of it in the hands of the priests. Moses, however, as the adopted son of Pharoah's daughter, was a privileged pupil of the priests. He was the first Israelite to be initiated into the mysteries of medicine, and he was likewise learned in all the wisdom of Egypt. He stands alone in medical history as the first iconoclastic physician worthy of the name. He recognized and propounded, as we of the twentieth century do to-day, the value of prophylaxis, the great basic principal of medical science. He may be called the father of prophylaxis. Cognizant of the inutility and of the absurdity of Egyptian curative measures, he gave to the world a health code which intrinsically, to our modern conception, appears well nigh perfect. Among many enactments the most important related to the prevention of disease, and with this aim in view he commanded notification, inspection, isolation and disinfection of the suspected persons and their effects.

The only two authentic sources of information regarding ancient Hebrew medicine and surgery are the Bible and Talmud. According to the Bible disease is inflicted upon human beings because of neglect or disobedience to God's commands. (*Lev.*, xxvi-16 to 25. *Ex.*, xxiii-25. *Deut.*, vii-15. *Ex.*, xv-26. *Deut.*, xxviii-60). Some of the pathologic conditions threatened for disobedience were the plague, consumption, carbuncles, fever, sterility, jaundice, ulcers, itch, insanity, leprosy, and blindness. The ancient Hebrews, like the Egyptians, believed in the demoniacal causation of disease. Josephus says that God enabled Solomon to expel disease demons by means of incantations.

The preservation of human health, by a thoroughly strict dietary and the avoidance of contagious diseases, is exhaustively considered in the last four books of the *Pentateuch*. Moses was impressed with the prevalence of infections and parasitic diseases and in his health codes taught, with marvelous wisdom considering the age in

(5) N. Y. Med. Jour., Dec. 25, 1909.

which he lived, the animals to be used and those to be avoided in the selection of foodstuffs. He indicated the thorough bleeding of the animals permitted as food, the burning of their fat, and the examination of those internal organs (the spleen, lungs, and liver), especially liable to disease. The animals to be avoided are generally those subject to parasites—*Trichina spiralis*, anthrax, etc.—and to infectious diseases, such as diphtheria and tuberculosis.

Prophylaxis. We are told (*Lev.*, xiii-14) that the Israelites prevented the spread of contagious disease, especially leprosy, by isolating the sick, burning their clothes and disinfecting their homes. The suspected individual went to the high priest, who was supposed to make the diagnosis. If the condition was doubtful the patient was isolated for seven days, during which time, if the suspicious eruption had spread, the disease was declared to be leprosy. The patient was then strictly isolated and cut off from communication with every one. Even kings were not exempt from complete isolation if attacked with a contagious disease. Thus the affected King Azariah (*I Kings*, xv-5) was isolated and directed to live alone outside of the city walls. Every leper on the approach of a stranger was compelled to bare his head, put a cover on his upper lip and cry out: "Unclean, unclean". Lepers were even buried apart from those who died a natural death.

Treatment. There are neither prescriptions nor explicit directions in the Bible concerning the treatment of diseases. In *Gen.*, xxvi is mentioned the first example of the use of amulets by the Jews to ward off disease demons. These amulets were fashioned in the shape of human figures. The present day phylacteries and *mezzuzas* of the Jews are in a sense simply inscribed parchment amulets to counteract evil influences. The *mezzuza* is a narrow tin box containing a slip of parchment with an inscription from *Deuteronomy*. The box is placed diagonally on the right door post of every orthodox Jewish home. The paucity of materia medica is easily proven by a perusal of the Bible and the Talmud. The former does not mention any drugs, while the latter refers only to a

few. The Egyptians were acquainted with hundreds of herbs and their products. It is therefore obvious that medicine among the Hebrews was very little influenced by the teachings of the Egyptian priests, who, as is known, kept their remedial measures to themselves. Among the Jews any person could practice medicine and impart his knowledge to whomsoever he wished. Scripture does not mention instances of priests acting as physicians. The prophets, occasionally, however, practiced medicine.

The medicine of the *Talmud* is a curious mixture of sense and nonsense, of many hygienic laws antedating those of the twentieth century, and of amusing Chaldaic superstitions. In anatomy and physiology the rabbis taught that the human skeleton was composed of 248 bones in the male and 252 in the female. They experimented in removing the spleen and said that the operation was not necessarily fatal. They made a differential diagnosis between albumin and seminal fluid by boiling; the former they knew coagulated and the latter liquefied. Rabbi Isaac contended that the liver secreted blood.

In surgery the Talmudists were acquainted with dislocations of the thigh, amputations, trephining, perforations of the lungs, fractures, and nasal polypi. Cæsarean section is mentioned in *Niddah,* 40-i. Surgeons were called *ummanim.* In major operations the patient was given a sleeping draught, *samme de-shinta.* Phlebotomy was performed either by means of leeches, *alukah,* or by cupping—the cup was called *karna de-ummana.* Intubation of the larynx was practised upon animals with a *kerumit shel kanet.* In fractures of the skull followed by trepanation a metal plate (*didduk shel kareveyah*) was employed to cover the exposed brain. Uterine specula were known to gynecologists (*Niddah,* 66). The edges of old wounds were freshened to form granulation tissue to hasten healing (*Hull,* 77).

Early Use of Mercury in Syphilis. A letter of Van Swieten. The use of mercury as a remedy for syphilis had already been begun by quacks in the fifteenth century and gradually gained the adherence of noted physicians who pushed it to the extreme. Finding that patients

were cured after the manifestation of its poisonous action in salivation, they came to think that this effect was necessary for the cure. Moreover they concluded that the syphilitic virus was eliminated by the saliva and hence the more saliva flowed the better. This practice imposed on patients unusual hardships and the cure was preceded by such dieting, bleeding and purging as to make the cure in some cases worse than the disease. Against this barbarous practice Van Swieten appeared as a successful protestant. He introduced the use of an alcoholic solution of corrosive sublimate which had previously been proposed by others, but they had not succeeded in securing the favor of the profession. So successful was Van Swieten that the prescription which he used has since been known as Liquor Swietenii and has survived in somewhat modified form to the present time. E. C. Van Leersum presents a letter of Van Swieten regarding this remedy of unusual interest. The letter is addressed to Mr. J. F. Van Leempoel, Med. Doct. at Rotterdam and is written from Vienna. It begins:

Mijnheer en vriend.

Hoe meer dit remedie bekent is, hoe liever ik het mag lijden, het is als voelgt.

The following is an English translation:

Honored Sir and Friend,

The more the remedy is known the better I like it; it is as follows:

℞ Mercur. sublimat. corrosivi, gr.....xij
Sp. frumenti (malt wine) semel rectificati.....ij.
Sponte solvitur; sublimatus.

A spoonful to be administered morning and evening and if the disease is very deep-rooted, I give somewhat more, yet the most has been to double the dose morning and evening.

There was a hospital here where this disease was treated by the salivation process and every now and then some patients have died during the cure. I have ordered this remedy to be used and three hundred were cured in this hospital, without one dying, yea without even complaining of the slightest inconvenience. This year there have been two hundred cured again and a goodly number will

be accepted afresh. At the same time I have prescribed a goodly quantity of an emollient decoction or simple barley water to be drunk with one third part of milk.

If the patient has previously taken much quick-silver, salivation will occasionally ensue, yet then I stop the remedy for a week, when I prescribe it afresh.

I have communicated it to the private physician of the Queen Dowager of Spain and the same success has followed. They get soup, bread, and a little lean meat for diet. I do not doubt that it will also have a good effect in Holland, the which I wish with all my heart.

I am also in favor of the inoculation of smallpox yet will treat thereof in my last book. I believe that I shall introduce the same here in time.

If your goodself has something new to communicate in this regard I shall be happy if you will let me know of the same; if per packet, I pray you to address it to my eldest son in Brussels; his address is:

Godefroy Baron Van Swieten, conseiller à la représentation etc. chez son Excellence Le Comte de Cobenzel à Bruxelles.

We have sent M. Jacquin, born at Leyden, to America, with a gardener, a painter and two bird catchers. We shall see what wonderful results will ensue.

An exceptionally fine academy has been built here; a botanical garden has been laid out, and M. de Haen gives every satisfaction. The Emperor's cabinet of natural objects is unsurpassed, and the store grows daily. I believe that a catalogue thereof is printed; the drawings have been made already. In a word everything is progressing here as well as could be desired and the Vienna Academy will soon almost be able to vie with any in Europe.

My eldest daughter is married to Ridder t'Serclaes, Adjutant General at Milan, and has already a daughter of her own. I still have a son of twelve years and a daughter of eight years, all hale and hearty.

Your most obedient servant,

Gerard B. van Swieten.

First American Hospital. According to J. J. Walsh [6] the first American Hospital was built by Cortez, the con-

(6) Med. Rec., Oct. 2, 1909.

queror of Mexico, before 1524 and is still in existence. The site chosen for it was that whereon Cortez and his followers first met Montezuma and his Mexicans. It is known as the Hospital of Jesus and is maintained by revenues obtained from the property conferred on Cortez by the Spanish crown for his conquest of the Mexicans. Strictly speaking even this was not the first hospital in America, although it is the first one of which there are any definite records. According to Prescott and other authors on the history of precolumbian America there were hospitals established in all the larger cities of the native states of Mexico before the coming of the Spaniards; and experienced doctors, surgeons and nurses, well versed in all the native healing arts, were provided for them.

The Mexican hospital, with its arcades and courtyard, is built after the model of many of the hospitals of Europe erected in the preceding centuries. Some of the finest hospitals in the world were planned and built during the thirteenth, fourteenth and fifteenth centuries. There is a hospital at Tanierre, in France, erected about the beginning of the fourteenth century, that is a model of its kind. Many of the features of it show how earnestly these people of the old time had studied the problems of hospital construction. In describing this hospital at Tenierre, Arthur Dillon, a New York architect, said:

"It was an admirable hospital in every way, and it is doubtful if we to-day surpass it. It was isolated, the ward was separated from the other buildings, it had the advantage we so often lose of being but one story high, and more space was given to each patient than we can now afford. The ventilation by the great windows and ventilators in the ceiling was excellent; it was cheerfully lighted, and the arrangement of the gallery shielded the patients from dazzling light and from draughts from the windows, and afforded an easy means of supervision, while the division by the roofless, low partitions isolated the sick and obviated the depression that comes from the sight of others in pain.

"It was, moreover, a great contrast to the cheerless white wards of to-day. The vaulted ceiling was very

beautiful; the woodwork was richly carved, and the great windows over the altars were filled with colored glass. Altogether, it was one of the best examples of the best period of Gothic architecture."

This tradition of building fine hospitals continued in Europe until the beginning of the sixteenth century. The first American hospital, as erected in Mexico, was due to a direct continuation of this old tradition carried over by the Spaniards from the mother country where, during the preceding century, some magnificent hospitals had been erected. Unfortunately an end of the great hospital movement of the Middle Ages was reached just at this time, and the development that had been secured in hospital organization did not maintain itself. The history of hospitals for the next three centuries nearly everywhere throughout the world is a sad commentary on the supposed constant evolution of man from a lower to a higher state. Ordinarily it is supposed that succeeding generations improve on what their predecessors have done. With regard to hospitals, however, just exactly the opposite followed during several centuries after this.

This first American hospital then, is interesting also as a landmark in the history of hospital construction and organization. It came at the end of a great period of hospital building during which all necessities for hospital work had been carefully thought out and details of construction planned for the benefit of the ailing. After it, all over the world a period of hospital decadence began which culminated at the end of the eighteenth century. Real improvement did not come until well on into the nineteenth century.

The second American hospital was built at Santa Fe in Mexico, but was not as beautiful as the one in the capital, and is not now in existence. The next American hospitals came in Canada, but while the French gave some attention to humanitarian work, the French Government was not so liberal in its support of colonial institutions, charitable and educational, as was the Spanish Government. The Hôtel Dieu in Quebec is on the same spot where the original Hôtel Dieu was, but the first building has long since disappeared.

Royal Laying-on of Hands. The peculiar ceremony of laying-on of hands for the cure of certain diseases, especially scrofula and a swelling of the thyroid gland which have often been designated as the King's evil, seems to have had its especial seat in France where it flourished till near the end of the eighteenth century. Its origin is unknown but some light is thrown on it by a description given by Joh. Christ. Lunig which is given with some remarks by W. Ebstein.[7] The description is as follows:

"After anointing with holy oil found at Reims, the French believe that the power to heal goiter on the human neck by simply touching it has been communicated to the kings of France if they merely speak the following words: 'The king touches thee, may God heal thee.' At the present day this cure is ceremoniously applied in France. The ordinary exercise of this power by the king is exercised four times a year *viz.*, at Christmas, Easter, Whitsunday, and All Saints Day. Extraordinarily the ceremony is carried out if necessary when a large number of patients, which sometimes amount to over 2,000, has collected at Paris. The previous day the king is present at the church at morning and evening prayer. The second day he makes confession, hears mass with great attention and partakes of the sacrament, so as to have the presence of God. Meanwhile those afflicted with the so-called King's evil, having been carefully examined by physicians to determine whether they really are affected with this disease, take their places either under the open sky or in a large hall and are so arranged that Spaniards have the first place and the French the last. They are arranged in two rows so that one can be touched by the right and the other by the left hand. In the middle sufficient space is left for a considerable number of persons to pass without hindrance.

"When it is time for the king to pass they fall on their knees and await diligently the coming of the royal physicians. Meanwhile they are carefully searched to see if they have concealed a knife or other deadly weapon. When the king enters they lift their hands and present

(7) Janus, April, 1910.

themselves to his royal majesty praying with uncovered head. When the king comes to the patients he is accompanied by the royal physician who holds the head of the patient and directs it to the king. The king then touches the face with these words: 'Le roi te touche, et Dieu te guérisse.' As soon as the king has passed all the patients, the ceremony is ended and a memento is given to every person who has been touched, in the form of a penny.

"It should further be remarked that in France the seventh son of the same father and mother, no sisters intervening, can cure this disease as also the baron of Aulmont, count of Casteausoux, in Burgundy and indeed the oldest of the race, because these lords have in their domain a spring at which several mementoes of such cures have remained for some time. But it is to be noted that whoever will avail himself of such power in France must previously fast three days and perform it in the name of the adorable trinity.[8]"

Ebstein is of opinion that this practice did not rest on a religious basis but was in some way assumed by kings whose successors kept it up as long as the popular opinion sanctioned it, but gradually abandoned it as enlightened public opinion made it no longer a source of popularity. Thus it appears to have been assumed by English kings during their French wars as a support to their claim to the French throne, and continued as a relic of that claim until the time of James I. who wished to resign it but dared not because he subscribed himself king of France and performed the ceremony of touching not as king of England, but of France. William of Orange finally abandoned the practice.

Dutch Folk-Medicine. Some interesting examples of Dutch folk-medicine are given by M. A. Van Andel.[9] The following superstitious method for securing pregnancy was adopted as late as the end of the eighteenth century: The method consisted in a visit to the church of Loosguinen. According to the account, Margaret, the wife of Florence IV, in the year 1276, bore as many children as there were days in the year. The explanation

(8) Theatur ceremoniale-historico-politicum, Leipsig, 1720.
(9) Janus, July, 1910.

of this miraculous story is that Margaret, according to her epitaph, present in the same church, was delivered of twins and died in child-bed, on good Friday of the year 1276. At that time the New Year began at Easter, so that she had borne as many children as there were days left in the year. In that church the twins were baptized in two baptismal fonts by the Bishop of Utrecht on the day of their birth. These fonts were touched by women with their pocket handkerchief or glove, after which they left, convinced that their sterility would be put an end to if they continued to carry those things with them.

Prediction of Sex. People rely on all sorts of signs to predict the sex of the expected child. If the former child was born during a waxing moon, the next child would be a son; if the former child was born during a waning moon, the next child would be a daughter. The same opinion is maintained in Ireland and in the French Ardennes. Another rule is the following: A drop of milk is squeezed from the breast into some water. If it does not mix with the water directly a boy will be born. If the milk immediately mixes with the water a girl will be born.

Maternal Impressions. In one village no red-haired cows are kept lest the women should become frightened and give birth to red-haired children. In the following case a wife whose husband like herself and her children were red-haired formed the practice during her pregnancy of looking as much as possible at a neighbor's daughter who had black hair; she gave birth to a black-haired child.

Partus. Traces of the influence of the celestial bodies at the date of birth still are found. It is generally believed if a birth does not take place at the expected time it will occur on the first day of the new moon; another opinion, that children born at the coming in of the tide, prevails on the coast and near the mouths of large rivers.

The Placenta. Care is taken that no dog or cat reach the placenta, for if this should happen fatal consequences would ensue for mother and child. In the eighteenth century it was generally believed that the child would become mad if the placenta were totally eaten, or become

more or less crack-brained if it were partly devoured. It must not be thrown into water lest the child should be drowned afterwards. The piece of the umbilical cord that falls off the child may give important indications regarding the child's fate. If it floats on the surface when thrown into water the child will be in good health and live long; if it sinks to the bottom the child runs the risk of falling ill and dying.

The Caul. The child born with the membranes over the head will have prophetic powers, especially to predict fires, shipwrecks and the approach of death. Such persons are also believed to be unusually liable to accident. It is believed that the mere possession of a caul imparts some wonderful properties, and it was formerly often sold at a high price.

Medical Practice in China. J. A. Rafter[1] describes some of the conditions of medical practice in China. Medical competition is keen, as in all other countries, but the Chinese doctor has an advantage over his western brother, as there is no code of ethics to annoy him. He is a firm believer in that old proverb that "he who tooteth not his own horn, the same shall not be tooted," so it comes about when the medical man finds his preserves being encroached upon, he is much given to making crow's tracks and upside-down-saw bucks on a large and highly colored sheet of paper, which he hangs outside of his office and where all can read. The translations of a few of his advertisements are as follows:

"Towers are measured by their shadows, and great men by those who envy them. I am the seventh son of a seventh son. I am endowed therefore with all the combined wisdom of forty-nine eminent doctors. My charges are moderate. My feet are planted among the secrets of the earth, and my head is lifted among the discoveries of heaven. My branches are wide and my roots penetrate deep into the earth. I cannot be overthrown by wind. I am no blind fowl pecking at random for worms. My knowledge is sure. I do not climb a tree to hunt for fish or turn a somersault in an oyster shell, nor am I a toad in a well, contemplating a patch of blue sky, but I survey

(1) Buffalo Med. Jour., April, 1910.

the universe as from a dome and take in at a glance all real and imaginable things.

"In my head are all the maxims of the medical god, all the arts of the imperial leech, all the prescriptions of the philosopher, all the magic the genii unwound from his queue, and all the rules of the reckoner. When I call diseases they answer to their names. Spirits vanish. Principles, elements, and forces assort themselves before me like feathers under the the fingers of the flower maker. At my bidding disorders of the most complicated nature resolve themselves into their several members and form action; color and sound have each a tongue to tell me what they mean. The medicines I dispense are of miraculous virtue and the gratitude of my patients has transformed the garden of my good works into a grove of fragrant almond trees. I apply myself with equal science and concern to all. I skillfully treat the corn on the toe of the mouse-catcher or the growth in the eye of the mandarin."

It may be that the Chinese doctor rather overdoes the thing in the way of advertising, yet his statements are in no way more preposterous than those made by advertisers along the same line in this country, and people here are just as easily influenced by such sigh-sounding impossibilities.

In China, physicians do not dissect the human body, and in consequence, scarcely know the position of the greater viscera, and the knowledge of the functions and uses of these necessary organs is not very coherent.

"The value of medicine is in direct ratio to the disgusting smell and taste it carries with it. Omitting many of the most obnoxious, I will give a few prescriptions, all of which are in use:"

For an Astringent.—Powder made from dried, ground toads, varnish and glue mixed. Powder from scorpions mixed with the powder from ground peach stones.

For a Tonic.—Extract of bear's jaws and nails. Tiger's bones made into pills. Shavings from stag's horns.

The reason for administration of the last one would be: Bears are very strong, and the jaws and nails fierce

and strong. Tiger's bones represent the strength of the animal. Stag's horns are also helpful. The patient needs strength.

To Reduce Fever.—Powdered moths mixed with glue. Rust obtained from old coffin nails. Extracts of insects, especially cockroaches.

For Cough.—Earth worms mixed with honey. Glue mixed with oyster shells.

To Expel Wind.—Extracts from the feet of monkeys and bats, asbestos, cuttle-fish bone and bird nests.

The medical gods hold a large place in Chinese practice, and all serious cases are called to their attention. This is done by thoroughly rubbing the ears of the god so he may hear, then the messenger rubs his own anatomy at the place where the disease is supposed to exist in the patient. He then rubs the god in the corresponding part, after which a highly-colored piece of paper is purchased which seems to have the god's approval. This is taken home, burned and the ashes given to the patient in tea or other hot beverage.

Such are some of the Conditions existing at this time in aged, sleepy and bad-smelling China. But the leaven is working. Asia is now within the sphere of the rush and whirl of the world's affairs. It cannot go back into darkness. It must go forward into the light. China has many needs and among the most important is an understanding, if such a thing is possible, of that strange peculiar being that helps to make up its four hundred millions of people.

Darwinism and Medicine.

The Influence of the Law of Natural Selection. In determining the influence of the law of natural selection J. A. Lindsay [2] considers the question whether acquired characters are inherited or not as one of vast importance. Weissmann holds that in all organisms there are two kinds of plasm, the somatic and the germinal, that the permanent germ-plasm passes unchanged through a series of generations and is not affected, or but little

(2) Lancet, Nov. 6, 1909.

affected, by environmental influences, which affect the somatic plasm; that modifications produced upon the somatic plasm by the environment and by use or disuse are practically limited to the individual and not transmitted to the offspring, and that hence no characters except those predetermined in the germ are available for evolution. Medical opinion has been to a large extent opposed to the views of Weismann, but it must be admitted that he has succeeded in throwing great doubt on the transmissibility of acquired characters, a doctrine which Darwin assumed as too obvious to require demonstration. Most of the supposed cases of such transmission are apparent rather than real. Syphilis seems a crucial case in point, hereditary syphilis being one of the most familiar of phenomena. But it is now practically certain that this is not a case of inheritance at all, in the strict sense of the term, the true explanation of the facts being an antenatal infection of the ovum, usually from the maternal side. Whether tuberculosis is ever directly conveyed from parent to child is still doubtful, but if such transmission were proved the most probable explanation would be the direct inoculation of the embryo and not inheritance. To disprove Weismann's doctrine, we should require to show that mutilations or the results of training, exercise, or education, or acquired diseases, reappear in the offspring as the result of heredity. This has not been hitherto conclusively shown. The problem is one which has great interest for us, and medical observers might contribute to its solution. Lindsay suggests a case in point where evidence from the side of medicine might be available. In a certain proportion of cases neurasthenia is brought on by over-study, anxiety, overwork, want of sleep, excess of some kind, in persons where no congenital tendency to nervous disease can be suspected. Is such neurasthenia transmitted either as neurasthenia or some allied condition?

The following might be stated as fundamental laws of growth: (*a*) the law of the perpetuation of species or of the unity of type; (*b*) the law of variation; (*c*) the law of reversion; (*d*) the law of atavism; (*e*) the law of correlation, whereby when one organ varies other organs

tend to vary also; (*f*) the law of compensation or economy, whereby increase of growth of one organ is accompanied by diminution in growth of another organ; and (*g*) the law of sexual selection.

We might summarize the foregoing laws as follows: The general tendency in all living organisms is that the child shall resemble the parent in specific characters—*i. e.*, that the unity of type shall be preserved. But variation from type is always present to a greater or less degree. Darwin thought that variation was largely due to changed conditions of life. Weismann believes that sexual reproduction is the chief cause of variation in the higher animals, including man, and Wallace shares this view. Variation is accompanied by a tendency to revert to type. Hence, notable departures from type tend to die out, but to this law there are many curious exceptions—*e. g.*, the Ancon sheep and the numerous "sports" amongst plants which have given rise to permanent new varieties. Atavism is the law whereby the child sometimes resembles the grand-parent or the great-grand-parent more than the parent. It may be regarded as a special case of reversion. By the law of correlation we mean that principle whereby when one organ varies another organ varies, the two organs not always being related in function. Thus white cats with blue eyes are always deaf. In certain breeds of cattle color and susceptibility to the attacks of flies are correlated. By the law of compensation or economy we mean that principle whereby nutriment required by the overgrowth of one organ is withdrawn from another organ. It is probably in consequence of this law that the highly specialized reactions of the nervous system developed in an advanced stage of civilization are accompanied by a decline in the birth-rate. Finally, sexual selection is undoubtedly a factor, although much uncertainty exists as to its extent of range and importance. The comparative absence of hair from the human body, especially in the female sex, has been attributed with much probability to sexual selection.

The influence of natural selection on the processes of disease must tend to produce immunity in the individuals

that survive, so that such diseases tend to become extinguished. This is probably true of tuberculosis so that a gradually increasing immunity must be added to improved hygienic precautions as one of the factors in causing the decreasing prevalence of this disease. The slight mortality of measles in civilized races as compared with the virulence of the same disease among savage tribes is another influence of immunity acquired through selection. Similar conditions explain the immunity of the negro to yellow fever. Family tendencies should be given due weight in prognosis and the tendency of nature to revert to the normal indicates that the *vis medicatrix naturæ* is one of the forces to be reckoned as on our side in the battle against disease.

The apparent tendencies to physical degeneration in civilized communities and the voluntary interference with natural selection raise grave questions as to the outcome of evolution. Does civilization by preserving the unfit and preventing their ruthless elimination which takes place in a state of nature, imperil the physical integrity of the race? Our marriage customs, for example, the not uncommon conjunction of youth and beauty with age and wealth, the transmission of enfeebled constitutions and sometimes of actual disease from parent to child, can such things be tolerated without grave risk to the physical welfare of humanity? Is the medical profession free from serious responsibility when its preserves those whom Nature has plainly marked out for elimination, and even enables them to transmit their unfitness to their descendants? These are not extravagant or sentimental questions. They are, on the contrary, highly practical questions, and if we so often keep them out of sight it is probably from an uneasy subconsciousness that they involve painful and paralyzing issues.

That civilization runs counter to natural selection is evident. It interposes artificial barriers to the free play of those forces which in a state of nature give the victory, both as regards personal existence and opportunity for perpetuating the species, to the strong, the brave, the fit. But it is not to be assumed without argument that civilization is dependent upon natural selection. According to

Lloyd Morgan, "Natural selection has long ceased to be the dominant factor in human progress." The same view is propounded by J. B. Bury in the following passage: "It may be said that, so far as concerns the actions and movements of men who are the subject of recorded history, physical environment has ceased to act mechanically, and in order to affect their actions must affect their wills first, and that this psychic character of the casual relations substantially alters the problem. . . Most thinkers now agree that the chief clues to the growth of civilization must be sought in the psychologic sphere. Imitation, for instance, is a principle which is probably more significant for the explanation of human development than natural selection." That is the view of a historian, and it must be admitted that it contains a great deal of truth, though not the whole truth. Mankind is more dependent for its progress upon the brain of a Pasteur or a Lister, a Kelvin or a Marconi, than upon the muscles of many cricketers, footballers, or oarsmen. The puny, sickly, or deformed child, which in a state of nature would be promptly eliminated, may possess the brain of a great discoverer, poet, or statesman. Yet physical soundness can never be ignored or deemed of small significance.

If physical degeneration is going on in our midst—and who can deny the fact, however much we may differ as to the extent of the fact?—we may feel sure that it is due to some species of non-adaptation to environment. We are inclined to attribute such degeneration as exists mainly to unwholesome surroundings, bad housing, bad air, bad food, insufficient exercise, and unsuitable clothing. These factors have weight, perhaps much weight, but a study of the phenomena of evolution may well make us doubt whether they are really the heart of the problem, whether, after all, the main thing is that we are, to a more or less extent, breeding from the wrong stock.

The relation of the medical profession to the question of the propagation and preservation of the unfit raises many difficult questions which cannot be adequately considered on this occasion. The question of our responsibility to those who shall come after us, though not a new ethical problem—it is found in Plato—has

become a practical question only in modern times. It is a principle with which we have henceforth to reckon. The art of medicine was for thousands of years concerned solely with the cure or relief of disease. At the present day the prevention of disease bulks hardly less largely in our thought, and this point of view indicates a distinct advance. In the future one may predict with confidence that the preservation of the purity of the race will be regarded as one of the essential tasks of the art of medicine. The whole question, it is almost needless to say, is involved in the greatest difficulty, but it will certainly force itself increasingly upon our attention. It will do so with the greater insistence if we realize that the future physical well-being of the race will be determined more by natural selection than by attention to environment, important though this latter factor may be. That the medical profession will ever in this country be invested with disciplinary powers for the regulation of marriage seems doubtful.. It seems probable that in this country we shall have to rely upon the operation of an enlightened public opinion—enlightened, as it must be, to a large extent by the influence of the medical profession.

Is the human form destined to undergo important changes in the future under the operation of evolutionary law? Are we to look for the coming of the super-man, a conception with which the thought of Nietzsche has rendered us familiar? "What with man is the ape?" says Zarathustra. "A joke or a sore shame. Man shall be the same for Beyond-man, a joke or a sore shame." This is by no means certain. Weismann thinks it doubtful whether man may not have achieved the summit of his development both as regards physique and intellect, and is inclined to look for progress solely in the ethical sphere. Yet some of the facts adduced in this address seem to point decisively to the conclusion that the human body is destined in the course of many generations to undergo at least minor changes. The teeth, the hairy covering of portions of the body, the toes, the special senses are almost certain to undergo modification. Nor

can we limit the probability of change to such parts as these.

A general survey of the relation of Darwinism to the science and art of medicine is likely to be salutary. It will certainly tend to breadth of view, to a philosophic appraisement of the factors with which we have to deal, to a recognition of the great underlying laws and secular processes which are related to our art. It may, perhaps, act as a damper upon enthusiasm when we realize that evolutionary change is slow and only partially under our control; but, if this be the truth, it is better for us to know and to recognize it. Medicine will gain in stability and in influence, as well as in dignity, by being in close relation with the higher thought of the day. It may in some not unimportant particulars react upon that thought. Disease becomes something more than a disagreeable and embarrassing fact when we realize how closely it is related to evolutionary processes, how vivid is the light it is capable of throwing upon evolutionary law. It even takes its place, a temporary place we may hope, in the eternal order. "Harmonious order," says Huxley, "governing eternally continuous progress; the web and woof of matter and force interweaving by slow degrees, without a broken thread, the veil which lies between us and the infinite—that universe which alone we know or can know—such is the picture which science draws of the world."

Parasitism and Natural Selection. The existence of parasites, by intensifying the struggle for existence, seems to have contributed greatly to the process of natural selection of higher type. R. G. Eccles [3] gives a number of instances in which the action of bacteria may explain some changes in which it was formerly believed that natural selection did not afford a sufficient cause. He shows that the action of bacteria sufficiently answers the question or objection urged against natural selection by Mivart when he declared that: "We cannot believe that the first minute beginnings of adaptation are valuable enough to be preservative." Eccles says: "In the battle against pathogenic micro-organisms the most in-

(3) Med. Rec., Nov. 6, 1909.

finitesimal additions or subtractions can tip the delicately poised scale toward survival or toward death." The lengthening of the tail by a few inches may be of selective value as a defense against tse-tse flies and trypanosomes. One-tenth of an inch added to the length of a tail, by enabling its possessor to reach an otherwise unprotected inch of its body surface, might, other things being equal, supply the very fitness needed for survival from an attack of nagana. According to Metschnikoff the epidermic layer sets up a defense against microorganisms by the production and expulsion of corneal cells. In the author's opinion the only explanation possible for such patent adaptation is natural selection. The thickening of the skin produced by work and wear is also an example of such adaptation. Where among all material things can its like be found? The hardest steel and the most dense platinum can be thinned down to nothingness by the same kind of treatment. Continuous attrition produces a result that is exceedingly anomalous in the case of living integuments. It is particularly evident in the palms of the hands and soles of the feet, places where such thickening is most needed. Use and wear mean increased exposure to conditions favorable to injury or puncture. Injury or puncture mean increased danger of infection. The thickening is an adaptation against disease. During millions of generations of such exposure the absence of such thickening must have meant extinction. Only those animals whose skins varied in the right direction could have survived.

Another adaptation is the clotting of the blood. How happen we to have blood that clots at all? How came the clotting to occur with such exact precision as to place and time of our requirements? Biologic chemistry can tell us much regarding the chemical conditions responsible for the clotting, but can cast no light on the weird strangeness of the dual fitness. Ask the chemist to explain how the adjustment came to exist that made the blood clot outside the veins instead of inside of them and he will be dumb. Nothing but the law of natural selection can illuminate this mysterious condition of things. With the phylogenetic development of living forms hav-

ing blood and bloodvessels, these properties must have been slowly gained by the selection of variations that led to this result. It is evident, too, that other protective devices came into being along with this and in the same manner. Before the most minute arteriole can be severed the watchful nerves give out a cry of pain. Not even a needle point can break the merest dot of the skin's continuity without this danger alarm being felt. We are thus compelled to guard our epidermis from thorns and thistles, insect-bites and abrasions, cuts and tears, at every appearance of such a danger. Why? It is not because such slight cuts are, in themselves, such serious things. It is because they act as portals of infection and thus have a life and death value for the sufferer. It is because ages of selection have most likely wiped out every creature whose skin did not keep becoming more and more sensitive and painful to such injuries. Nor was this adequate. The danger from infection in this way is so great that the pain had to be anticipated by another prior annoying sensation. The crawling vermin and the proliferating bacteria were made to add this other warning as an anticipation of possible puncture. Our sense of comfort was, therefore, disturbed by a feeling of itchiness. This compelled scratching and scratching dislodged mites, pediculi, fleas, bugs, chigoes, bacteria, and other such marauders. Our thick-skinned, hair-covered lemurian progenitors did their scratching with claw-like nails. Our thin and hairless skins would be constantly lacerated by claws. Wide nails could not get past their matted hair to do successful scratching. We do not require claws to get through the hair upon our bodies. The fitness of wide nails must have come with our delicate skins. Any other kind of nail for us would increase the death-rate by increasing infection. Our present exceedingly low death-rate from infection, through scratching, starting erysipelas or general pyemia, must be the last remnant of what was once a very high one. From the time that our forebears first got their thin skins to the time that the claw-nails widened out into our present pattern it is highly probable that the deaths among them, from this cause, must have been very

great. Itching as a fitness against infection must be as old as, or older than, claws.

Eccles thinks that the distribution of the touch spots over the body is to be explained by their utility in preventing infectious matter being carried to the tongue which is most sensitive of all. Lastly he applies the principle of defense against micro-organisms to a problem that has produced perhaps more discussion than any other with regard to the efficiency of natural selection. Darwin, in his *Descent of Man,* tells us that, "From the presence of the wooly hair or lanugo on the human fetus, and of rudimentary hairs scattered over the body during maturity, we may infer that man is descended from some animal which was born hairy and remained so during life. The loss of hair is an inconvenience and probably an injury to man, even in a hot climate, for he is thus exposed to sudden chills, especially during wet weather. As Mr. Wallace remarks, the natives in all countries are glad to protect their naked backs and shoulders with some slight covering. No one supposes that the nakedness of the skin is of any direct advantage to man, so that his body cannot have been divested of hair through natural selection. Nor have we any grounds for believing, as shown in a former chapter, that this can be due to the direct action of the conditions to which man has long been exposed, or that it is the result of correlated development." On the same page he adds a note giving the following as the views of Mr. Wallace upon this subject: "Mr. Wallace believes 'that some intelligent power has guided or determined the development of man,' and he considers the hairless condition of the skin as coming under this head. The Rev. T. R. Stebbing, in commenting on this view remarks that, had Mr. Wallace employed his usual ingenuity on the question of man's hairless skin, he might have seen the possibility of its selection through its superior beauty or the health attached to superior cleanliness. At any rate, it is surprising that he should picture to himself a superior intelligence plucking the hair from the backs of savage men (to whom, according to his own account, it would have been useful and beneficial), in order that the de-

scendants of the poor shorn wretches might, after many deaths from cold and damp in the course of many generations, have been forced to raise themselves in the scale of civilization through the practice of various arts, in the manner indicated by Mr. Wallace." The explanation which Darwin himself offers is that of sexual selection. It is exceedingly questionable whether a female anthropoid ape would deem hairlessness beautiful and sufficiently so as to be willing to desert all males with a covering of the kind that was to them "fashionable." In such matters habit constitutes the criterion of beauty. Esthetics deal with harmony or symmetry. The intense dislike that we all possess against being odd, eccentric, or unlike others, is not due to any sense of beauty but to habit. It is a kind of conservatism. For a hairy member of a hairy race to vary toward unhairiness would, probably, be deemed the reverse of beautiful. If the hair should disappear asymmetrically it would be looked upon as hideous, and any member of such a community changing in this way would be considered a freak to be avoided. Among negroes, as Darwin tells us, the black, thick-lipped man is chosen as the beautiful man. The blacker he is the more beautiful he is thought to be. The negro's sense of symmetry cannot differ much from our own, but his race habits, in this particular, are quite unlike ours.

The explanation of this matter according to Eccles is to be found in an adaptation of the skin to the protection of the body against micro-organisms. Certain micro-organisms escape from the body through the skin and if their escape is hindered, are likely to produce severe affections of that organ. In contending with such diseases the presence of hair would be a disadvantage and consequently the individuals with the smallest supply of hair would most frequently escape. Those also which had survived the disease would be likely to have less hair than before. These persons would naturally intermarry. Any variations in the germ- and sperm-plasm would be of a common character and the marriages would intensify the same and give us mutations. The long, dense hair of the back and spine would create the

most dangerous lesions during desquamation and so kill off most rapidly those that failed to vary in the direction of less hair, shorter hair, and less coarse hair. Woman is less hairy than man. While caring for the ailing, and nursing her children in dark caves or huts, she would be far more constantly in contact with the desquamated skin and the germ-discharging suppurating sores. Her dosage would be larger and she would be longer subjected to the same. While she would be eating stored food exposed to pus discharges and exfoliated particles of skin he would be using fresh food from forest or field. In these conditions we likewise can see a possible explanation for the existence of that form of the disease known as *dermatitis exfoliativa neonatorum*. Natural selection would be less severe on infants because of the less coarse character of their hair. Their immunity would, therefore, be slower in reaching completeness than in the case of the mothers. Generations of cultivation confined to babies would tend to produce a strain particularly adapted to them. Woman are most immune, as would be expected from the complete way the disease must have acted upon them. The various types of this class of diseases behave exactly as if due to different strains of an originally identical kind of germ. Our lack of hair, and particularly its complete absence from the spine, woman's hairlessness and the exposure she would have had, man's present greater susceptibility to the disease, and the imperative deduction of natural selection from this viewpoint, if all mere coincidences, certainly are extraordinary ones.

Mongolian Congenital Blue Spot. E. Apert[5] reports the results of a study of a peculiar spot of blue color that is constantly found in new-born Japanese, Chinese, Annamites, Malays and Polynesians. The spot is of the size of a two-franc piece (silver quarter) and is quite marked during the earlier years of the child, but grows fainter with age and disappears at about the age of 8 to 10. It is not absolutely confined to the yellow races, but occasionally appears in white infants, so that western physicians should not be ignorant of its existence in order that

(5) Presse Méd., Mar. 26, 1910.

they may dispel the fears of the parents of such an exceptional child.

The spot is usually situated on the sacral region, its lower border reaching to the fissure between the buttocks. It is usually irregularly circular, but not always symmetrical. The color is bluish and it looks like a tattoo mark. It does not disappear on pressure but often becomes more marked on the anemic skin. Smaller accessory spots are occasionally seen. There is no elevation of the skin over the spot. Exceptionally such spots are seen in the dorsal region and they may be arranged along the spine like the bands of a zebra. More rarely they may be found on other parts of the body such as the shoulders, arms, legs, etc. These unusual spots are likely to be more persistent than the regular sacral spot.

The spot is due to the presence in the deeper layers of the skin of special cells charged with black pigment. They are situated in the true skin and separated from the epidermis by a layer of cutis destitute of pigment. The pigment differs from the normal pigment of the skin which is located in the epidermis. The blue color is due to the fact that it is seen through a layer of skin, but the nature of the pigment is the same as that of the skin, being composed of melanin.

The chief prevalence of the blue spot, as has been said, is among the yellow races. It is rarely found among the negroes and still more rarely among the members of the white race. Among the Chinese and Japanese not more than 2 to 5 per cent. lack this peculiarity. Among the negroes it is not easy to observe after the first few days of life on account of the depth of color of the natural pigment, but in the first days after birth there is no more pigment in the negro child than in the white so that the observation is easily made. In the white races it is more frequently seen in the inhabitants of southern Europe than among the northern nations; the general proportion is about 1 in 500. It has been noticed that it is usually seen in the children of brunettes and the infants themselves have usually brown hair and eyes. It has been claimed that the spot is found among the negritoes of the Philippines, but Apert believes that they are no more

subject to it than are pure negroes. The geography of the blue spot shows that it is largely confined to countries bordering on the Pacific ocean including the islands but not the shores of Africa. Apert rejects the theory of Ashmead that the occurrence of the spot among Europeans is due to an admixture of negro blood, and considers that it is a special monogolian character. In mixtures between mongolians and other races the spot seems to persist as a special character indicating that it is what Mendel would call a dominant character; and it appears to persist after other signs of mixture of race have disappeared. The instances of the appearance of this peculiarity in the members of the white race may be explained on the theory of a mixture with the yellow race sometime in the past, but Apert believes that it is to be regarded as an original variation.

Biography.

Robert Koch. The following account of the details of the death of Robert Koch was published in the Berlin Letter:[6]

Robert Koch died May 27, 1910, at Baden-Baden. The apprehension expressed in the first report of his illness many weeks ago was soon justified. A new attack of heart-failure terminated his life. It goes without saying that one cannot adequately measure the importance of this gifted man in a letter. Surely in him we have lost one of the greatest physicians of the present time, indeed one may say without offense to anyone, the greatest, for no one has so impressed himself on the medicine of our time as Robert Koch. Since the present age of medicine may rightly be designated as the etiologic age, Robert Koch may be regarded as a creator of it. For while the foundation of modern bacteriology had already been laid by Pasteur and Lister, Robert Koch was the first to succeed by his investigations in securing a firm basis on which to build a system of infectious diseases in their etiologic relations. Inasmuch as his teachings also had secured the greatest results for public and social

(6) Jour. Am. Med. Assoc., June 26, 1910.

hygiene, the value of his lifework must receive a higher estimate than even that of a Rudolf Virchow. Sorrow at his death finds worthy expression in the entire civilized world as is shown by the dispatches. The two physicians who treated him, Professors Kraus and Brieger, of whom the latter, as is well known, is one of his most gifted pupils, make an extensive report in the *Deutsche medizinische Wochenschrift* regarding his last illness. Koch suffered from anginal symptoms since March, 1910, and for a year or more previous the pulse had been intermittent. The attacks which became steadily longer and severer, he overcame by his energy of will. Up to the last he worked daily from about 9 in the morning until 2 p. m. in the laboratory of the institute for infectious diseases and his ward in the Virchow hospital. Koch had for years considerable cough and occasional expectoration, but bacilli were never demonstrated. In the end of 1890 he passed through a severe left-sided pneumonia. During his tour in Japan, Africa and America he experienced no special difficulty.

Koch was never a heavy smoker nor addicted to the use of spiritous liquors, but he did not spare his body in any way during his travels and in his scientific work. He had once a severe attack of cholera and had repeatedly suffered from malaria and often had disturbances of the bowels. In the night of April 9, Koch without recognizable cause was attacked with heart-failure of the severest kind. After a short sleep he awoke with a feeling of impending death, with heavy perspiration, severe dyspnea and vomiting. At the same time a sharp pain radiated from the precordium to the left shoulder. Immediately he noticed marked râles in the bronchi which were also evident to the bystanders. In this condition Brieger found him sitting on the edge of the bed with ice-cold extremities, in agonizing dyspnea, completely collapsed, but awaiting his end with a mind clear and composed. The pulse was thread-like with a frequency of about 80 (previously 58) and very irregular. An injection of morphin gave him relief after about fifteen minutes. He slept until 9 in the morning and then awoke with similar symptoms, especially the râles, the dyspnea and

the heart weakness. Toward noon Brieger and Kraus examined Koch together. They found the condition better than in the night. The left ventricle of the heart was moderately hypertrophied. There was general edema of the lung with a frothy, serous and sanguinolent expectoration and a very frequent and irregular pulse. The heart tones were dull and faint. There was marked rigidity and contortion of all the palpable and visible arteries. The liver was slightly swollen, there was very slight increase of urine. It must be assumed that in consequence of disease of the coronary artery, a softening of the heart muscle had taken place. The next morning while the pain in the region of the heart had become especially severe a loud pericardial murmur could be heard. In addition there were marked hematuria and cylindruria. The temperature was somewhat raised one evening only. The friction sound disappeared after two days but a recognizable effusion of fluid did not occur. At the same time the urine regained its normal color, and was quite free from albumin and casts.

At first the treatment consisted in the administration of digitalis, morphin and strong coffee, and the application of warm compresses to the region of the heart and to the feet and hands. Under this treatment a condition of comfort was secured which continued very satisfactorily for a week. The patient who at first had calculated that he would live three and later eight days acquired again a degree of courage, his appetite increased, the amount of urine rose to 1800 c.c. and the swelling of the liver was reduced. The pulse showed an average frequency of 60, and while the tension remained low the rhythm was good. The edema of the lung, however, was more obstinate, and especially on the left side it continued and never fully disappeared. After the first week, the heart beat became for a few days unduly frequent, the pulse thin and very irregular and the edema increased. Treatment with digitalis also relieved this intermediate attack. After this the pulse rate was kept at 60, the tension of the pulse soon became much better and the blood-pressure rose to 144 mm. Hg. The patient was able to be out of bed for days at a time.

After May 14 he took several rides, received his friends and tried to read, to dictate and to carry on some literary work. Unfortunately the condition continued such that even with the moderate frequency of the pulse and a tolerable tension, the slightest emotion or light muscular effort, walking, etc., immediately produced marked acceleration of respiration.

A careful medical examination in the middle of May gave the following results: Arteriosclerosis, blood-pressure 110-160 mm. Hg., normal rhythm (even with single ventricular extrasystoles), hypertrophy and dilatation of the left ventricle (as determined by the apex beat and the *x*-ray), enlargement of the left auricle. Murmurs in the heart were not again heard. The electrocardiogram showed a marked variation in the auricle and the "Nachschwankung" was markedly negative. The glands at the root of the lung appeared to be markedly enlarged on both sides, the tracing of the hilus was abnormally sharp and the left lung was insufficiently clear in the lower section. In the region of the apices there were no shadows (*x*-ray). Koch stated finally that he had had an old tuberculosis but for the moment he was more easy with regard to his dyspnea, for he had no fear of tuberculosis.

Koch was a quiet, uncomplaining and obedient patient. He did everything that the physicians directed, observed himself with greatest interest, discussed the progress in the findings and preserved always a stoic tranquility. He was pleased as a child when with increasing appetite the porridge which he had become so fond of in England tasted good again. So soon as the conversation turned on scientific matters he forgot immediately all his suffering, his eye sparkled under his high brow and only his dyspnea reminded him of the limits assigned to his physical powers. The prognosis from the very beginning was unfortunately bad. The little improvement in the findings which made possible a life in the arm chair and short promenades in his room deceived no one. Koch very earnestly desired to escape from the confinement of his room to Baden-Baden, where his friend, Libbertz, was staying. He stood the journey

very well at which he was very much pleased. May 27 an aggravation of the condition suddenly occurred, and after an attack lasting for a few moments, death followed. Following his directions the body was cremated at Baden-Baden.

Florence Nightingale. The death of Florence Nightingale at the age of ninety removes one of the most striking figures of the nineteenth century.[7] Born to wealth and luxury, she early showed a taste for the work to which she later gave her life, and lost no opportunity of visiting hospitals and studying the care and nursing of the sick. At that time the profession of nursing was not at all a fashionable occupation and had little attraction for a refined and educated lady. As one of Miss Nightingale's biographers has said, it was considered to be a profession which no decent woman of any rank could follow. In spite of this, after examining all the nursing institutions available to her in her own country she went to the Hospital of the Protestant Sisters of Mercy at Kaiserwerth, Germany, and later to the Sisters of St. Vincent de Paul in Paris. When the Crimean War broke out military nursing was practically an unknown art and anyone who has read William H. Russel's account of conditions in the British hospitals near the seat of war can see how different they were from those of modern days. Miss Nightingale's project was spoken of as an undertaking wholly new to English customs. Her work in the hospitals of Scutari and Balaklava was pioneer work in nursing in military hospitals, but she showed such capacity for management in spite of specially difficult conditions that she made it a success.

Modern military nursing, among English-speaking peoples at least, owes its origin to Florence Nightingale. She captured English opinion in spite of the prejudice of a nation which is none too ready to take up with novelties of any kind, and her name has become a household word. Though after the war she was an invalid, her activities did not cease; she was constantly consulted in all matters of nursing for fifty years or more, and her writings and utterances have carried weight wherever

(7) Jour. Am. Med. Assoc., Aug. 20, 1910.

the English language is spoken. Her advice was sought and taken in hospital construction during our Civil War and during the Franco-Prussian war, and many of the plans for the building and organization of hospitals in England passed through her hands. The training schools for nurses which she established at St. Thomas' Hospital and King's College Hospital in London have been the models for all similar institutions since established in Great Britain and America. As a writer on sanitary subjects she was clear and incisive and her opinions always carried weight. She had also a special capacity for condensing the facts and verbiage of government reports and stating in brief space the important matter they contained. Though little before the public eye, and never courting publicity, but rather avoiding it, she was sought out and honored by the greatest personages in her own country and was the only woman on whom has been conferred the "Order of Merit." It is said that she was always accessible to the workers in the institutions which she founded and always took the liveliest interest in them. Hardly any one of her countrywomen has done work more effective for good or has left behind her a choicer memory.

William Meyer. H. Myglind[8] reviews the life of William Meyer, the laryngologist who first recognized adenoids and their effects. William Meyer was born in 1824 in the Danish town of Frederica, where his father was regimental surgeon in the Danish army. In 1826 the family removed to Glückstadt in Holstein where Meyer passed his childhood and youth until 1843 when he entered the University of Copenhagen. As a student he took the highest honors attainable. After graduation he travelled for some time, visiting various European universities, studying principally internal medicine. In 1853 Meyer established himself in private practice in Copenhagen. At first he had a hard struggle but by degrees circumstances improved, and in the course of time he became one of the most sought-after private practitioners in the whole of Copenhagen.

It is, however, as an otologist that Meyer will be re-

(8) Jour. Am. Med. Assoc., Sept. 3, 1910.

membered. It was pity for suffering humanity that first attracted him to this specialty. In his extensive practice he constantly came across patients whom deafness, buzzing and pains in the ear had rendered almost desperate. Such patients the majority of medical men of that period were only too glad to get rid of as deafness was a subject but little understood. In the hope of rendering some assistance to such unfortunates Meyer made an exhaustive study of the otologic literature then existing, and purely self-taught, he became by degrees one of the greatest otologists of his time.

It was while engaged in the treatment of ear disease that Meyer made the discovery of adenoid growths, a discovery which for all time will be associated with his name. In 1867 a young girl came to Meyer to be treated for deafness. He observed that nasal respiration was almost totally obstructed even after treatment for chronic catarrh of the nose and throat, which did not alleviate the deafness. He decided that respiration was impeded by causes to be sought for in the nasopharynx, and explored the cavity by passing his finger up behind the soft palate and found the nasopharynx full of peculiar swollen growths, on the removal of which respiration became perfectly free and the hearing improved. Meyer now began to suspect that these growths were the cause of the patient's deafness, and on examining other patients with ear trouble found in several the same condition in the nasopharynx.

In addition to his great intellectual powers Meyer added an almost unique industry and power of application. During a journey in Italy, in 1885 at the age of 71, Meyer contracted typhoid fever which caused his death. At the initiative of Sir Felix Semon a monument was erected to Meyer's memory in Copenhagen by subscriptions from all parts of the world.

Ignaz Semmelweis. E. B. Young [9] gives a short account of the life of Ignaz Semmelweis and his work on puerperal sepsis. In Young's opinion the importance of the work which he accomplished in his researches on puerperal sepsis and in his efforts to prove the neces-

(9) Boston Med. and Surg. Jour., July 1, 1909.

sity of antisepsis in the practice of obstetrics is not appreciated, first because the results of his investigations were originally published in Hungarian, and secondly, because they met such strong opposition from his contemporaries that they failed to receive well merited support. Like reformers in every age, he suffered persecution—a medical persecution—such as happens to few, and as real of its kind as has fallen to the lot of any physician who has progressed beyond the comprehension of his time.

He was born in Budapest on the first day of July, 1818, and received his preliminary education in the city of his birth. In 1838 he began the study of medicine in Vienna; then returned to the University of Pest; and finally was granted his diploma as Doctor of Medicine at Vienna, in 1844. Later in the same year he received the degree of "Magister" in obstetrics and also in surgery. After acting as assistant for a few months in the obstetric department of the Vienna General Hospital, he left, but returned again in March, 1847, and remained for two years.

Shortly after the beginning of his second service, he became impressed with the fact that puerperal fever was due to the direct transmission of decomposed animal matter through the persons examining or caring for women in childbed. Accordingly, in addition to simple washing, he began the use of chlorin water as a disinfectant for the hands of those attending patients in labor. He also allowed no student who had been in the autopsy room to visit the ward until twenty-four hours had elapsed. The effect of these precautions was marvelous, the death-rate falling at once from over 10 per cent. to 1 per cent.

During the latter part of July, 1865, he suddenly developed pyemia contracted during an operation, and died Aug. 13, 1865, a victim of the malady to the combating of which he had dedicated his active years.

Previous to his time, the cause of childbed fever, on the continent of Europe at least, was one of the mysteries of medicine. He was the first there to perceive definitely that it was the result of direct transmission of infective material through uncleanliness, and the first in the world to strive to avoid such transmission by

proper methods of nursing, cleanliness and antisepsis. It was not until long after the introduction of antisepsis in surgery by Lister, that the medical world made practical application in obstetrics of the truths which Ignaz Philipp Semmelweis had so clearly proclaimed many years before.

[The contagiousness of puerperal fever had, however, been recognized by many authors in Great Britain and was demonstrated in America by Holmes before the publication of Semmelweis.—ED.]

LIFE INSURANCE.

Practical Suggestions. In the opinion of W. E. Porter [1] the well-equipped, selected insurance examiner of to-day may justly be proud of his association with this branch of medical work. It is a specialty which affords great possibilities for scientific advancement. The statistical data being accumulated by the members of the Association of Life Insurance Medical Directors of America will, within a few years surpass in value the accumulated vital statistics collected from any other source and prove of the highest value not only to the profession, but to the world at large. As to the future value of the work, the essential factor in accomplishment of results will be the proper selection and organization of the examining force.

The author selects candidates from graduates of the leading medical schools and gives them personal instruction in the underlying principles of the medical aspect of life insurance as well as its practical application. In quizzing them he has been impressed with the necessity for special instruction in this branch of medical work. In the first place the viewpoint of the examiner for life insurance is diametrically opposite to that of the attending physician. The examiner needs the strongest field glass to detect the flaws which are most carefully concealed by the applicant, whereas the attending physician, to arrive at correct conclusions, should reverse the glass in order to reduce the highly exaggerated and magnified conditions presented by the patient.

(1) Boston Med. and Surg. Jour., Sept. 23, 1909.

The examiner should be not only a competent physician, but also a keen, shrewd man, of quick perception and sound common-sense. He should be tactful and diplomatic and, at the same time, absolutely incorruptible. There are, in the United States and Canada, approximately 40,000 examiners who receive for their service in life insurance work a grand total of from four to five million dollars annually. Out of this entire number there are not more than 2,000 who have had any special training in life insurance.

In starting in with life insurance work it is imperative that the physician acquire at least a rudimentary knowledge of the principles governing the work and of the company's viewpoint. Longevity is the essential subject to be considered. The paramount question before the examiner is how long is the given applicant likely to live? An approximate expectancy at the various ages is as follows: At 20, forty-two years; 30, thirty-five years; 40, twenty-eight; 50, twenty-one; 60, fourteen; 70, eight.

As to the influences affecting longevity, one should consider the following: Race, environment, occupation, morals, habits, family history, medical history and the physical condition. Race is a decided factor in the consideration of longevity but with the exception of Mongolians, negroes, and Indians, the data given do not afford opportunity for giving much weight to this factor. The susceptibility to tuberculosis and the common history of syphilis among the negroes and Indians, in addition to the factors of moral and general environment, are sufficient to demand special note of race. The Mongolians, moreover, owing to racial customs, unhygienic life and, in the case of the Chinese, to the general use of opium, are distinctly undesirable.

The examiner frequently gives an indefinite statement as to occupation without reference to the actual character of business followed. In such cases the examiner should state specifically the exact nature of the occupation, particularly if in his judgment it should be considered as extra-hazardous or in any way affecting the applicant's probable longevity. In most companies the

physician is expected to note chiefly those occupations where moral hazard, excessive nervous strain and unfavorable sanitary conditions are involved. Bartenders, saloon- and hotel-keepers who attend their own bar, employees in breweries, gamblers, brothel-keepers and prostitutes are notoriously short-lived. Where suspicion exists in the mind of the examiner that a given applicant represents these or similar callings, most careful inquiry and investigation is demanded. The strenuous and exciting life of the modern business man, constitutes a danger which is not fully appreciated. Neurasthenia or other more serious diseases of the nervous system, digestive disorders, tuberculosis, nephritis, arteriosclerosis, apoplexy, insanity and suicide appear as the cause of death in this class, far in advance of the ordinary expectancy.

Although the effects of faulty sanitary surroundings are found chiefly in industrial insurance, it is a factor to be borne in mind in all cases. The examiner should note any lack of ordinary cleanliness, light or fresh air, as each is a decided factor in considering the probable expectancy of life.

Morals. Whereas the question of moral hazard is usually covered through the investigation by the inspection department, the shrewd, observing examiner may often gain valuable information by careful observation and inquiry. A history of personal injury should demand details as to how received, whether in personal conflict, the result of a quarrel or simple accident. This in itself might prove of great value as pointing to a definite moral hazard. History of frequent venereal disease may point to sexual excesses. Personal appearance indicating alcoholic excess is another important factor regardless of the personal history given by the applicant.

Habits. In considering the personal habits of the applicant reference is usually made to the use of alcoholic stimulants, tobacco, and drugs. Neison's table shows the influence of alcohol upon the expectancy at various ages to be as follows:

Age.	Intemperate.	General.
20	15.5	44.2
30	13.8	36.5
40	11.6	28.8
50	10.8	21.2
60	8.9	14.3

From this one may note that the expectancy of the alcoholic is only one-third of the general at age twenty; while at sixty, it is nearly two-thirds.

The question as to whether a given subject should be classed as intemperate is often a most difficult one. The applicant for insurance will rarely make a strictly truthful statement, usually claiming to take much less than he really does. On the other hand, there are young men who seem to take pride in claiming that they have been drunk on various occasions. It is, therefore, essential that the examiner use care and good judgment in his endeavor to obtain the actual facts, so as to exclude the undesirable risks and not unduly prejudice the favorable ones. In order that he may have an intelligent idea of what constitutes excess from an insurance standpoint, he should be familiar with the amount of various beverages at Anstie's daily limit of 1½ oz. absolute alcohol. Roughly, the equivalent is 3 oz., or three or four drinks, of ardent spirits, such as whiskey or brandy; two wineglassfuls of sherry or strong wine; three glasses of ale or porter; four or five glasses of beer, and a pint of claret or champagne.

Tobacco as a factor has been eliminated from the inquiry blanks of many companies, owing to the failure to demonstrate satisfactorily through statistics the degree of its injurious effect. In older subjects, or, in fact, in any subject where there is apparent lack of tone to the heart sounds and irregularity of heart action, special inquiry should be made as to habits in regard to tobacco, giving details as recorded.

Family history in life insurance, when correctly given by the applicant and recorded by the examiner, is of great value in showing both the hereditary tendencies and longevity. Both factors should be borne in mind

and an honest endeavor made to obtain as accurate and definite information as possible. The applicant is rarely well informed as to the exact cause of death or age of relatives and will usually endeavor to conceal hereditary tendencies by vague or incorrect replies. Careful cross questioning and repetition is essential, therefore, in obtaining satisfactory records.

Medical History. The following conditions ordinarily preclude life insurance at standard rates: Total blindness, double cataract, epilepsy, paralysis of central origin, apoplexy, insanity, history of insanity in two or more members of immediate family; vertigo, persistent; delirium tremens or chronic alcoholism; intemperate habits, as evidenced by daily consumption of the equivalent of more than 1½ oz. of pure alcohol; drug habit; carcinoma or other malignant tumor; rheumatism, articular, three attacks; pleuritic adhesions, extensive; pulmonary emphysema; any other morbid condition of lungs or bronchial tubes; heart, valvular or other organic lesion of; arteriosclerosis; chronic nephritis; diabetes; prostate gland, hypertrophy or chronic inflammation of; chronic bronchitis; pleurisy, frequent attacks of; curvature of spine, anteroposterior or extreme lateral; hip-joint disease; hernia, irreducible; organic disease of any sort. Organic disease of the heart justifies refusal. Yet here frequent errors occur. In the first place, the applicant who has actual organic disease, particularly in its earlier stages, is quite likely to be entirely unaware of the fact; whereas the neurotic subject with trivial functional disturbance is quite sure that he has a serious impairment.

Where a previous history of cardiac disturbance is given, a statement from the attending physician should always be asked for, and the applicant examined with the greatest care. A stethoscope should invariably be used and the possibility of so-called functional and pressure murmurs excluded. Where a murmur is heard continuously through all stages of the respiratory cycle, it is fair to assume that it is due to valvular abnormality. On the other hand, where it can be entirely eliminated, yet with the heart sounds clearly heard at a certain phase

of respiration, there is a strong possibility that the sound is produced by intrathoracic pressure, and not by valvular obstruction or leakage. By placing the applicant in the prone position or partly turned to the side, with the arm thrown up and over the end of a lounge, the exact condition may often be determined where uncertainty has previously existed in the mind of the examiner.

In determining accurately cardiac and valvular conditions the sphygmomanometer will be found of great help to the life insurance examiner. The Kilborn instrument will be found one of the most convenient and practical for the busy examiner and practitioner. It can be readily carried and has an adjustable dial so that error can be readily eliminated.

The following conditions render the individuals temporarily uninsurable and require postponement and further examination: Renal calculus, hepatic calculus, temporary albuminuria, persistent abnormal specific gravity of urine, stricture of urethra, fistula (especially anal), history of past alcoholic excesses, asthma, persistent cough, hemoptysis, intermittent or irregular pulse, pulse rate over 90 or below 50, articular rheumatism, gout, suppurative inflammation of the middle ear, emaciation, recent loss of weight, appendicitis, tape worm, first pregnancy, repeated attacks of erysipelas, recent illness of any sort which may temporarily affect the health but which will not leave permanent results.

History of renal calculus should invariably necessitate careful chemical and microscopic examination of a specimen of urine at the home office. A large percentage of such cases will show an abnormality precluding insurance. If, however, the specimen thus examined is found normal, and a history of but one attack of renal colic is given, the case may be considered within six months to a year of the time of the attack. With two or more attacks, postponement of five years, at least, should be demanded. Statements should be obtained from attending physicians and careful inquiry made as to any history of surgical treatment.

Hepatic calculus should require postponement for

from five to ten years. Here, as with renal calculus, the number of attacks with dates of each should be ascertained, and full statements furnished from attending physician as to character and duration of treatment or exact nature of surgical procedures followed.

Temporary albuminuria and glycosuria demand postponement for from three to six months, at least. Before accepting such cases three normal specimens should be obtained and a signed statement furnished by the applicant that he has been under no treatment, dietary or medicinal. Persistent abnormal specific gravity of urine, that is, above 1,030 or below 1,010, should demand similar requirements.

Asthma should require postponement until two years after the last attack occurring independently of "hay fever" or "rose cold." Where it occurs only as an accompaniment of these latter conditions the case may be accepted after complete recovery from the attack upon the receipt of satisfactory statement from the attending physician. Persistent cough should postpone, until six months after recovery, with a statement from the attending physician that there had been no suspicion of tuberculosis. Hemoptysis requires postponement of at least ten years, and the company should invariably be given the benefit of the doubt in questionable cases. Recent loss of weight beyond a few pounds should postpone until normal weight is regained.

Tapeworm requires postponement until the head has been passed, or several months elapsed since the last evidence of presence of the worm noted.

First pregnancy should postpone until two months after delivery.

History of repeated attacks of erysipelas should postpone until a year after last attack.

Finally, any illness which may temporarily affect the health but not leave permanent results should postpone.

Certain conditions may render the individual insurable only on a modified plan for a limited term of years. In this class may be mentioned: Overweights and underweights; applicants with impaired family history; syph-

ilitics; certain rheumatic and gouty subjects; those suffering from goiter.

Insurance and Lodge Practice. H. H. McCarthy[2] notes the growing popularity of lodges and insurance societies which agree to furnish medical services to their members at rates varying from $1.25 to $3.00 a year, including the family if there is one. He finds that physicians' fees in the middle and eastern states are lower than in the west and that this fact is drawing a great many physicians to the western states. The establishment of lodge practice tends to increase competition and still further lower professional fees. The lodge doctor cannot afford to give adequate time and study to the treatment of his cases and he cannot afford to take post-graduate courses. The competition for the position of lodge physician is becoming much keener, and when members of the profession become reduced to the question of making a living, there will be a greater reduction in the physician's fee.

MEDICO-LEGAL.

Compensation for Injuries. A. Miles[3] comments on some phases of the British law of compensation for industrial accidents. Section 1 of this law says: "If in any employment, personal injury by accident arising out of and in the course of the employment, is caused to a workman, his employer shall be liable to pay compensation." In interpreting the meaning of injury by accident the courts have been vary liberal, deciding that nervous shock may cause such injury and that, "if a workman, in the reasonable performance of his duties, sustains a physiologic injury as the result of the work he is engaged in, it is an accidental injury in the meaning of the statute." The injury is held to include diseases contracted through accidental wounds, and the Home Secretary has officially extended the meaning of the law to include the following: Poisoning by various chemicals, including nitrous fumes, arsenic, lead, mercury, phosphorus, &c.; epitheliomatous cancer due to pitch tar, or

(2) Northwest Med., March, 1910.
(3) Edinburgh Med. Jour., February, 1910.

tarry compounds; glanders; anthrax; subcutaneous cellulitis of hand (beat hand); cellulitis over patella (beat knee); cellulitis over elbow (beat elbow); inflammation of the synovial lining of the wrist-joint and tendon sheaths; nystagmus (mining); ankylostomiasis (mining).

Hernia is considered to result from accident, but it is important to determine that it is genuine and did not exist before the accident. Appendicitis brought on by aggravation of a latent form of the disease by employment is held to come under the meaning of accident in the law. The workman is bound to use reasonable means to repair the injury, but is not compelled to submit to every operation that might be proposed.

The act is liable to abuse, and the temptations to unscrupulous lawyers to encourage litigation are numerous. Miles says: "Perhaps the most practical method would be to simplify the procedure for calling in the medical referee. Under the Act (Schedule 11, 15) an application for reference to a medical referee must be at the instance of *both* parties, and the referee's certificate is conclusive as to the matters referred. It is easy to understand that a workman who knows he has a weak case will refuse consent to a reference under these conditions. If the Act were changed to the extent of allowing a reference on the demand of *either* party, at any time, much might be done to shorten the period of disability and to prevent malingering.

"The proposal that a medical assessor should sit with the judge is not free from difficulties. One judge, for example, in discussing this matter, expressed the opinion that a medical assessor would not be so valuable to him as the opposite views of medical experts. It must be kept in mind that there would of necessity be difficulty in obtaining the services of a suitable man to act as assessor, one who combined the necessary knowledge of medicine and surgery with the judicial habit of mind. And further it would be still more difficult to find one who with these qualifications had an intimate knowledge of the nature and conditions of the work which the injured man performed, and this after all is often the vital

point in the case. It is not so much a question of what exact pathologic lesion has occurred, as of how that lesion impairs the man's ability to perform the particular manipulations of his work in the way they must be performed under the conditions of his employment. Even if such an Admirable Crichton could be found in the vicinity of every Sheriff Court, the cost of employing him would almost prove prohibitive.

"While it cannot be doubted that, on the whole, the Workmen's Compensation Act has benefited the laboring classes, it is not without its disadvantages, and as time goes on these are becoming more manifest. Already it has been the means of throwing many men out of employment. Insurance companies have found that at the present rates they cannot afford to run risks on account of men who are not in every respect physically fit, that is, to take "under-average risks." Already some companies are raising their rates, and this tends to make employers lower wages, or run their works with as few hands as possible. The result is that some insurance companies require that the men in large works shall be medically examined before being taken on. One large English railway company insists on this, and has given instructions to their medical officer to reject all men who have any abnormality, however trifling, which, if complicated as a result of accident, might give rise to a claim. The Shipping Federation in Leith insists upon a medical examination of all seamen before allowing them to sign on, and since the Act of 1906 came into force, Miles had occasion to operate on a great many seamen for such conditions as hernia, varicose veins, varicocele, &c., to enable them to secure employment. If a man suffering from hernia, for example, declines to be operated on, he is either refused employment, or his papers are endorsed stating the condition from which he suffers, so that if a claim is subsequently based on this affection, there is documentary evidence of its previous existence."

In some trades also a black-list of men who are known to have some abnormality which might give rise to a claim, or who have already been injured at work, is cir-

culated among the different works, and these men are refused employment. Miles has personal knowledge of several men who are unable to obtain employment at their own trades owing to this practice. Old men also suffer severely. In one shipbuilding yard the employers have given instructions that no one is to enter their employment for the first time who is over 40 years of age. Further, if a man has been in their employment, and from slackness of work they are compelled to dismiss him, he is on no account to be re-engaged when times improve if he is 50 or over. A shipping federation has all its men overhauled every time the ship is in a British port, and in one ship of 3,500 tons register, within nine months, no fewer than 6 men had been put out of the stokehold alone on account of physical defects which might become the ground of a claim.

Danger of Wood Alcohol. It has been pretty well understood that wood alcohol is decidedly unsafe to drink; that even its vapor may jeopardize the eye-sight. To the medical profession especially has this danger been emphasized by the excellent researches of Buller and Wood. Now comes Mueller,[4] the German physiologist, who says that pure methyl alcohol is little more poisonous than ethyl alcohol; that it is the impurities which make methyl alcohol poisonous. It is stated that no systematic experiments have heretofore been made to determine the toxic qualities. The deductions of Mueller do not make methyl alcohol any more safe, but they may lead to a method by which it can be manufactured more free from the impurities referred to. One way of stating the case might be that methyl alcohol is naturally denatured in the process of manufacture.

Occupation Diseases. D. L. Edsall[5] considers the relations of occupations to disease, and emphasizes the importance of giving increased attention to the study of individual occupations in their relation to medicine. In considering occupations in their relation to disease, and in properly appreciating their effects, constant use will necessarily be made not only of the knowledge of the

(4) Jour. Am. Med. Assoc., Aug. 20, 1910.
(5) Jour. Am. Med. Assoc., Dec. 4, 1909.

medical sciences, but also of any knowledge possessed of an infinite variety of technical subjects. It is not enough to be content with the mere names of occupations, since these general terms frequently tell nothing of what the particular individual does, but are mere general terms, covering various occupations, as laborer, mechanic, machinist, etc. There is too little system used and the occupation is too often passed over for other details of the history, unless there are some peculiar conditions in the case that suggest an unusual degree of relation to the individual's work or unless the mere name that the patient gives recalls at once some familiar consequences of such employment.

While it is impossible to learn all the details of every patient's occupation there should be some system by which the main details of his work may be learned. Edsall learns, as far as possible, what sort of substances the patient works with, what position he works in, whether it is day or night work, the degree of exposure to heat, cold, or wet, and a few similar points; and, especially among well-to-do patients, but also with those of simpler life, he determines the degree of responsibility and general nerve strain. Edsall believes that there are few even of the common place occupations, in which more careful inquiry into the details of the work will not be repaid by a much broader understanding of some of the ills that people engaged in these occupations complain of—even though one may not often elicit points that are worthy of separate record in medical literature. For instance, it is known that those who work with heated tallow and other animal grease are subject to gastro-intestinal disturbance, apparently from the volatile fatty acids that are given off which the workers ingest and inhale.

It has been chiefly from study of occupations that we have learned the important effects of local and general strain in producing their very striking results on the circulation and other general functions or on special local tissues. Occupations have also, of course, furnished practically all our knowledge of the effects of dust of various kinds, and our conception of the importance of

commonplace things in producing disease must certainly be made much more emphatic by considering the dreadful evidence of the influence of very dusty occupations on health.

It is also largely through our knowledge of occupations that we have learned of the curious way in which many poisons exert their effects on particular tissues, a point that is seen so strikingly in the fact that lead, in a large proportion of cases, picks out not only the nerves of the upper extremity, but a particular nerve in the forearm, in adults; while in children it more commonly attacks the nerves of the lower extremities. Arsenic, on the other hand, usually attacks most severely the nerves of the lower extremities; and while arsenic violently affects sensory nerves, lead scarcely does so at all. Methyl alcohol, in strange contrast to both these, shows a striking affinity for the optic nerve alone, a peculiarity that, curiously, is to a large extent shared by the newer organic preparations of arsenic, atoxyl and arsacetin. Facts like these have largely influenced our conceptions of toxemias, and help to point the way toward future precision in understanding and controlling toxemias.

There would appear to be an opportunity, also, to advance our knowledge of cancer in ways that might be very useful through studying occupations more accurately. There is sufficient evidence that chimney-sweeps and workers in tar pitch and paraffin get cancer from the substances with which they come in contact in their occupations, to make it desirable to attempt more earnestly than has yet been done to determine what the nature of the peccant substances is—whether chemical or possibly micro-organismal.

Edsall urges in addition the sociologic standpoint. More thorough study should be made of the hygienic conditions in occupations in this country, in order that special provision may be made for the circumstances which exist here. In comparison with other countries there has been little study and control of the ill effects of occupations. As to regulations, these are exceedingly few in number and inefficient, except in regard to a few striking points such as the regulation, in a limited way,

of the hours of work, the danger of accidents, etc. While laws are essential, they are not the first or the only important step. Another important point is to get the working people to carry out the necessary precautions intelligently. The common attitude of apathy on the part of both employer and employee is best overcome by pointing out the beneficial effects of proper hygiene; and if the economic value of hygienic measures can be impressed upon the people, suitable laws will come much more quickly, especially when there has been accumulated general knowledge of the conditions that actually exist in this country and of the things that are needed in correcting them. This must originate in a very large part from physicians, for they have frequent occasion to see clearly what the effects are.

State Control of Medical Practice.

F. M. Crandall[6] reviews the history of legal regulation of medical practice in the United States. He quotes as follows the introduction of the following law:

"Whereas, many ignorant and unskilled persons in physic and surgery, in order to gain a subsistence, do take upon themselves to administer physic and practice surgery in the City of New York to the endangering of the lives and limbs of their patients, and many poor and ignorant persons inhabiting said city, who have been persuaded to become their patients, have been great sufferers thereby. For preventing such abuses for the future, be it enacted that no person whatever shall practice as physician or surgeon before he shall first have been examined and after due examination of his learning and skill, shall be approved and admitted to practice."

This law was passed in 1760 and the first examining board appointed. The law originally applied only to the City of New York, but in 1792 a second law was enacted by the State Legislature renewing the colonial law and applying it to New York County. In 1797, the law was extended to cover the State.

On April 4, 1806, a law was passed which looms up as

(6) Med. Rec., Apr. 9, 1910.

a great landmark in the medical history of this State. Under its provisions the State and county societies were organized and clothed with great legal powers and were specially commissioned to "regulate the practice of physic and surgery in this State." So radical were its provisions that every legally qualified physician was declared by the courts to be "*ipso facto* a member of the medical corporation." Upon its enactment a contest for the control of the power to license medical practitioners was begun which lasted one hundred and one years. Under the law of 1806, the power to license practitioners was vested wholly in the county societies, the Board of Censors in each county being the examining board. This power was held without interruption by the county societies from 1806 until 1880. Exclusive control, however, was held for only three years, for under the law of 1809 graduates of the State medical schools, on a degree granted by the Regents, were entitled to practice without examination by the censors.

During the earlier part of the nineteenth century, therefore, there were two sources from which a license to practice medicine emanated: (1) The diploma of the Regents of the University; (2) the license granted by medical societies to those who had studied with a licensed practitioner.

In 1872, a law was enacted by which the principle was first established that licenses might be granted by a State department, and not by those engaged in teaching and practicing medicine. This principle was limited, however, and the other methods were continued in force. This was the first step toward absolute State control and completed an epoch which has now passed into history.

The second step toward State control was taken in 1880. By the law then enacted, the power was taken from the societies and the provisions of the act of 1872 were broadened and strengthened, thereby giving the Regents additional power. The character of the medical diploma as a license was still sustained, however.

The third step toward State control was taken in 1890 when a law was enacted vesting the power to grant licenses to practice wholly in the Board of Regents and

giving that Board the authority to determine the qualifications to be required of medical practitioners as regards preliminary and professional education.

The fourth and final step toward State control was taken by the enactment of the law of 1907, by which the State, through its Education Department was placed in full control of all matters relating to the practice of medicine, without regard to medical sects, societies or colleges. Thus after continuous agitation for more than a century, the various forces seeking to control the licensing power were set aside and one of the most potent incentives to medical politics and intrigue was swept away.

The law of 1880, to which reference has already been made, contained another feature of the greatest importance, that of requiring all persons engaged in medical practice to register their licenses in the office of the County Clerk. The significance of such a requirement is obvious, for an authentic license must be presented for registration. Any practitioner whose name does not thus appear is an illegal practitioner and is at any moment liable to arrest and prosecution.

The subject of preliminary education is probably being now discussed more earnestly than any other pertaining to medical education and licensure, and views are very divergent. The medical colleges of this State are finding that the students from the average high school have not a satisfactory basis upon which to begin the professional training required for a modern physician, and therefore, there is some discussion as to the advisability of increasing the requirements for admission.

The advocates of radical increase in the preliminary requirements in the advanced states apparently do not consider the different classes of students who are being educated in the medical colleges of this country. They are of three general types. 1. A few will do little or no medical practice but will enter upon research work in laboratories and institutes and will devote themselves to the advancement of pure medical science. 2. A somewhat larger number will settle in the cities and adopt a specialty and in time will become consultants. 3. By far the greater number will scatter over the land, in both

city and country, as general practitioners. Crandall believes every medical student who can possibly do so should take a college course before he enters the medical school, and a hospital course after graduation. He firmly believes that more preliminary education is desirable than is given in the average high school, but he feels that the time is not ripe for a general legal requirement of more than one year of special preparatory work after completion of a high school course.

Still another subject of State legislation has been that of the medical college course and scope of medical education. The almost universal standard throughout the United States for many years was three year's study of medicine. The actual time of instruction however, was not more than five months in each year. In 1896 four college courses were required for at least seven months each in four different calendar years.

When the State assumed control over licensure under the law of 1890, three examining boards were appointed, representing the regular profession, the homeopaths and the eclectics. In time, however, inferior schools arose demanding recognition and asking the privilege in almost all instances of practicing upon educational requirements inferior to those imposed on regular physicians. This left two courses open; one was to recognize every medical sect as it arose and give it a State examining board; the alternative was to refuse longer to recognize medical sects.

After a great deal of deliberation it was decided wisest to ignore medical sects and to establish definite educational requirements; that any person fulfilling these requirements should be recognized as a physician and should be licensed to practice medicine. After much consultation the Education Department prepared a bill in which these principles were embodied and after a bitter struggle it was enacted into law in April, 1907. It was commonly known as the "medical unity law" or "single board law" but was in fact a general medical law, the most comprehensive that has been enacted since 1806. Examinations are conducted in anatomy, physiology, chemistry, pathology, bacteriology, hygiene, sanitation, obstetrics, gynecology, diagnosis, and surgery.

The various specialties are included under the last two headings.

It should be understood that written examination is not the only test relied upon in New York and in twenty-six other States, for candidates are not admitted who have graduated from colleges of low standing. There are many colleges in the United States as well as in foreign countries whose graduates are not permitted to enter the examinations. Admittance is a guarantee that the applicant has had good educational opportunities.

The fact that the power to establish educational standards is vested entirely in the individual states results in some lack of uniformity. The standard is still deplorably low in some States, there being no less than thirteen which have no legal requirement whatever for preliminary education. It is probable that in time a common standard may be evolved which will be acceptable in its essential features to most if not all States. It is not possible to force such a standard upon any State, and capable practitioners in low standard States must suffer, whether they remain in their own State or remove from it.

After November, 1907, a three-years' course was required of osteopaths and the same examination before the State board as that exacted of physicians. After 1910 an approved four-years' course and the State examination is required, thus placing all applicants for practicing the healing art in New York upon the same basis.

Until 1907 there was no statutory definition in New York as to what constituted the practice of medicine. As a result of the persistent efforts of Champe S. Andrews, the recent legal adviser of the New York Society, judicial decisions have been obtained. Using these as a basis, the following definition was written into the law of 1907 and was by no means the least of its important features: "A person practices medicine within the meaning of this act, except as hereinafter stated, who holds himself out as being able to diagnose, treat, operate, or prescribe for any human disease, pain, injury, deformity, or physical condition, and who shall either offer or undertake, by any means or method, to diagnose, treat, operate, or prescribe

for any human disease, pain, injury, deformity, or physical condition."

The laws of New York as they now exist are but a reflection of a tendency that has been active for fully three decades. They recognize physicians only and take no cognizance of medical sects. The profession itself has been rapidly drifting to the same position and is now more homogeneous than it has been at any previous time for almost a century.

State Examinations. W. T. Councilman[7] emphasizes the importance of practical examination of candidates for license to practice medicine. He says: "The examination, to be effective, must be practical. The candidate must show, not what cramming, but what medical training he has had and what he can do with the knowledge he has obtained. At the first sight there would seem to be many difficulties involved in the change from the written to the practical, but they are not so serious as they appear to be. It has been found possible in other countries to base the grant by the state of authority to practice on an examination of practical character, and it seems really absurd to say it can not be done here. We have only to adopt methods which are practical, which have been tried and approved elsewhere. Such examinations would undoubtedly demand the use of laboratories and of hospitals for their conduction, but they could be obtained. Examinations should not be held in cities where such indispensable aids can not be obtained."

He proposes to divide the examination into two parts, the one including a practical examination in laboratory technic and clinical laboratory examinations. This examination might be given when the first half of the medical course is completed. The second part would require the use of patients and some use of a hospital. The patients may be selected chiefly from the dispensary ambulant material, and among these, cases can be found illustrative of the more common diseases of organs. The candidate should be given the necessary appliances, chemical and physical, to be used in diagnosis and should

(7) Jour. Am. Med. Assoc., Aug. 14, 1909.

show not only his ability to use them, but to understand their use. How much use would be made of acute cases in the wards is uncertain. Certainly in the beginning of this method of examination it would be well to excite just as little opposition as possible. Any objections on the part of the patients themselves to their being used for examination purposes could be easily overcome by a small fee. It would be well, of course, to include with the sick a certain number of the normal.

The examination in obstetrics and gynecology could largely be made on the manikin. The final examination should be given only to candidates who have successfully passed the primary. Whether the two examinations are taken separately or together may be left to the choice of the candidate. The author estimates that the necessary expense would not be over $25.00 per candidate. He sees no objection to raising the fee sufficiently to include such expenses. The fee, with a corresponding lengthening and increase in the efficiency of the examination might be made $50.00 or even $100.00.

VIVISECTION.

Education of the People as to the Value of Vivisection. W. B. Cannon[8] urges the responsibility of the general practitioner to employ his opportunities for educating the people on the value of animal experimentation, and of opposing the claims and of correcting the misrepresentations of the opponents of vivisection. These agitators are making converts to their point of view because their activities are not met by corresponding activity on the part of medical men, and their statements are not contradicted by the information which medical men are in a position to offer. In some respects, unfortunately, laboratory workers are unable to meet these attacks with convincing power. One reason for this is that these workers are not naturally engaged in public affairs, but are primarily students. Furthermore, even when they do speak, their motives are questioned; they are declared to be under the necessity of advocating the practice which provides them with a livelihood. The only

(8) Boston Med. and Surg. Jour., Sept. 23, 1909.

persons who are in a strong strategic position to defend research and preserve to it that freedom which is necessary for the unrestricted advance of our knowledge of disease and its control, are the practicing physicians and surgeons. They are in a position, through special training, to speak with authority concerning the benefits derived from animal experimentation, for they are employing information thus derived in the daily treatment of the sick. They are in a position to know the methods employed in medical laboratories to advance the knowledge of disease. On the other hand they meet in the course of their duties persons whose feelings have been harrowed by the tales of torture that the antivivisectionists put forth, persons of humane temper seeking for the facts. The laboratory workers must depend on them to be interpreters of their work and the spirit in which that work is performed.

Vivisection Rules at Laboratories. The Council on the Defense of Medical Research [9] has learned that in the larger medical laboratories regulations have been posted, in some instances for many years, stating the conditions and expressing the spirit in which animal experimentation was to be conducted. These regulations have been collected, summarized and revised, and have been sent to all laboratories which have reported that animal experimentation was carried on within their walls. These rules are as follows:

1. Vagrant dogs and cats brought to this laboratory and purchased here shall be held at least as long as at the city pound, and shall be returned to their owners if claimed and identified.

2. Animals in the laboratory shall receive every consideration for their bodily comfort; they shall be kindly treated, properly fed and their surroundings kept in the best possible sanitary condition.

3. No operations on animals shall be made except with the sanction of the director of the laboratory, who holds himself responsible for the importance of the problems studied and for the propriety of the procedures used in the solution of these problems.

(9) Boston Med. and Surg. Jour., Sept. 23, 1909.

4. In any operation likely to cause greater discomfort than that attending anesthetization, the animal shall first be rendered incapable of perceiving pain and shall be maintained in that condition until the operation is ended.

Exceptions to this rule will be made by the director alone, and then only when anesthesia would defeat the object of the experiment. In such cases an anesthetic shall be used so far as possible, and may be discontinued only so long as is absolutely essential for the necessary observations.

5. At the conclusion of the experiment the animal shall be killed painlessly.

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